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Trench Roller

RT 56SC-2
RT 82SC-2

OPERATOR'S MANUAL

0170875EN

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CALIFORNIA

Proposition 65 Warning:

Engine exhaust, some of its constituents, and certain vehicle components, contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Foreword

This manual provides information and procedures to safely operate and maintain this Wacker Neuson model. For your own safety and protection from injury, carefully read, understand and observe the safety instructions described in this manual.

Keep this manual or a copy of it with the machine. If you lose this manual or need an additional copy, please contact Wacker Neuson Corporation. This machine is built with user safety in mind; however, it can present hazards if improperly operated and serviced. Follow operating instructions carefully! If you have questions about operating or servicing this equipment, please contact Wacker Neuson Corporation.

The information contained in this manual was based on machines in production at the time of publication. Wacker Neuson Corporation reserves the right to change any portion of this information without notice.

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1 Safety Information

This manual contains DANGER, WARNING, CAUTION, *NOTICE* and NOTE callouts which must be followed to reduce the possibility of personal injury, damage to the equipment, or improper service.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE*:** Used without the safety alert symbol, ***NOTICE indicates a situation which, if not avoided, could result in property damage.

Note: *Contains additional information important to a procedure.*

1.1 Laws Pertaining to Spark Arresters

Notice: State Health Safety Codes and Public Resources Codes specify that in certain locations spark arresters be used on internal combustion engines that use hydrocarbon fuels. A spark arrester is a device designed to prevent accidental discharge of sparks or flames from the engine exhaust. Spark arresters are qualified and rated by the United States Forest Service for this purpose.

In order to comply with local laws regarding spark arresters, consult the engine distributor or the local Health and Safety Administrator.

1.2 Operating Safety

WARNING

Familiarity and proper training are required for the safe operation of the machine. Machines operated improperly or by untrained personnel can be hazardous. Read the operating instructions contained in this manual and the engine manual, and familiarize yourself with the location and proper use of all controls. Inexperienced operators should receive instruction from someone familiar with the machine before being allowed to operate it.

1.2.1 Always operate machine with all safety devices and guards in place and in working order. Do not modify or defeat safety devices. Do not operate machine if any safety devices or guards are missing or inoperative.

1.2.2 ALWAYS disengage and stow the locking bar for the articulated steering joint before operating the machine. The machine cannot be steered when the locking bar is engaged.

1.2.3 ALWAYS check that all controls are functioning properly immediately after start-up! DO NOT operate machine unless all controls operate correctly.

1.2.4 ALWAYS remain aware of changing positions and the movement of other equipment and personnel on the job site.

1.2.5 ALWAYS remain in visual contact with machine at all times while operating controls.

1.2.6 ALWAYS remain aware of changing surface conditions and use extra care when operating over uneven ground, on hills, or over soft or coarse material. The machine could shift or slide unexpectedly.

1.2.7 ALWAYS use caution when operating near the edges of pits, trenches or platforms. Check to be sure that the ground surface is stable enough to support the weight of the machine with the operator and that there is no danger of the roller sliding, falling, or tipping.

1.2.8 ALWAYS position yourself safely when operating machine in reverse or on hills. Leave enough space between yourself and the machine so you will not be placed in a hazardous position should the machine slide or tip.

1.2.9 ALWAYS use the SmartControl™ transmitter neck strap provided by Wacker while operating with the control cable connected. This neck strap is designed to break away so that the operator will not be dragged by the machine should the machine slide, tip, or fall.

1.2.10 ALWAYS wear protective clothing appropriate to the job site when operating the machine.

1.2.11 ALWAYS remain aware of moving parts and keep hands, feet, and loose clothing away from the moving parts of the machine.

1.2.12 Read, understand, and follow procedures in the Operator's Manual before attempting to operate the machine.

1.2.13 Store the machine properly when it is not being used. The machine should be stored in a clean, dry location out of the reach of children.

1.2.14 Do not allow anyone to operate this equipment without proper training. People operating this equipment must be familiar with the risks and hazards associated with it.

1.2.15 Do not touch the engine or muffler while the engine is on or immediately after it has been turned off. These areas get hot and may cause burns.

1.2.16 Do not use accessories or attachments that are not recommended by Wacker Neuson. Damage to equipment and injury to the user may result.

1.2.17 NEVER leave the machine running unattended.

1.2.18 NEVER start a defective unit in need of service or repair.

1.2.19 NEVER operate the machine with the fuel cap loose or missing.

1.2.20 NEVER operate multiple rollers within 14 meters (45 feet) of one another, unless you are certain that each roller and its accompanying transmitter have been set to a different control channel than the other rollers/transmitters being used within the area. Refer to section *Setting Control Channels* for additional information.

1.3 Operator Safety while using Internal Combustion Engines

WARNING

Internal combustion engines present special hazards during operation and fueling. Read and follow the warning instructions in the engine owner's manual and the safety guidelines below. Failure to follow the warnings and safety standards could result in severe injury or death.

1.3.1 DO NOT run the machine indoors or in an enclosed area such as a deep trench unless adequate ventilation, through such items as exhaust fans or hoses, is provided. Exhaust gas from the engine contains poisonous carbon monoxide gas; exposure to carbon monoxide can cause loss of consciousness and may lead to death.

1.3.2 Do not smoke while operating the machine.

1.3.3 Do not smoke when refueling the engine.

1.3.4 Do not refuel a hot or running engine.

1.3.5 Do not refuel the engine near an open flame.

1.3.6 Do not spill fuel when refueling the engine.

1.3.7 Do not run the engine near open flames.

1.3.8 Refill the fuel tank in a well-ventilated area.

1.3.9 Replace the fuel tank cap after refueling.

1.3.10 ALWAYS check the fuel lines and the fuel tank for leaks and cracks before starting the engine. Do not run the machine if fuel leaks are present or the fuel lines are loose.

1.3.11 ALWAYS keep the area around a hot exhaust pipe free of debris to reduce the chance of an accidental fire.

1.4 Service Safety

WARNING

A poorly maintained machine can become a safety hazard! In order for the machine to operate safely and properly over a long period of time, periodic maintenance and occasional repairs are necessary.

1.4.1 ALWAYS replace the safety devices and guards after repairs and maintenance.

1.4.2 ALWAYS turn engine off and remove key from machine before performing maintenance or making repairs. This is required to prevent unintentional remote starting.

1.4.3 ALWAYS secure the articulated steering joint using the locking bar before lifting, jacking, and servicing the machine. The machine halves could swing together unexpectedly and cause a serious injury.

1.4.4 ALWAYS replace missing and hard-to-read labels. See Parts Manual for ordering information.

1.4.5 ALWAYS make sure slings, chains, hooks, ramps, jacks and other types of lifting devices are attached securely and have enough weight-bearing capacity to lift or hold the machine safely. Always remain aware of the location of other people in the area when lifting the machine.

1.4.6 Keep the area around the muffler free of debris such as leaves, paper, cartons, etc. A hot muffler could ignite the debris and start a fire.

1.4.7 Replace worn or damaged components with spare parts designed and recommended by Wacker Neuson Corporation.

1.4.8 Keep the machine clean and labels legible. Replace all missing and hard-to-read labels. Labels provide important operating instructions and warn of dangers and hazards.

1.4.9 DO NOT open hydraulic lines or loosen hydraulic connections while the engine is running! Hydraulic fluid under pressure can penetrate the skin, cause burns, blind, or create other potentially dangerous hazards. Set all controls in neutral and turn engine off before loosening the hydraulic lines.

1.4.10 Do not attempt to clean or service the machine while it is running. Rotating parts can cause severe injury.

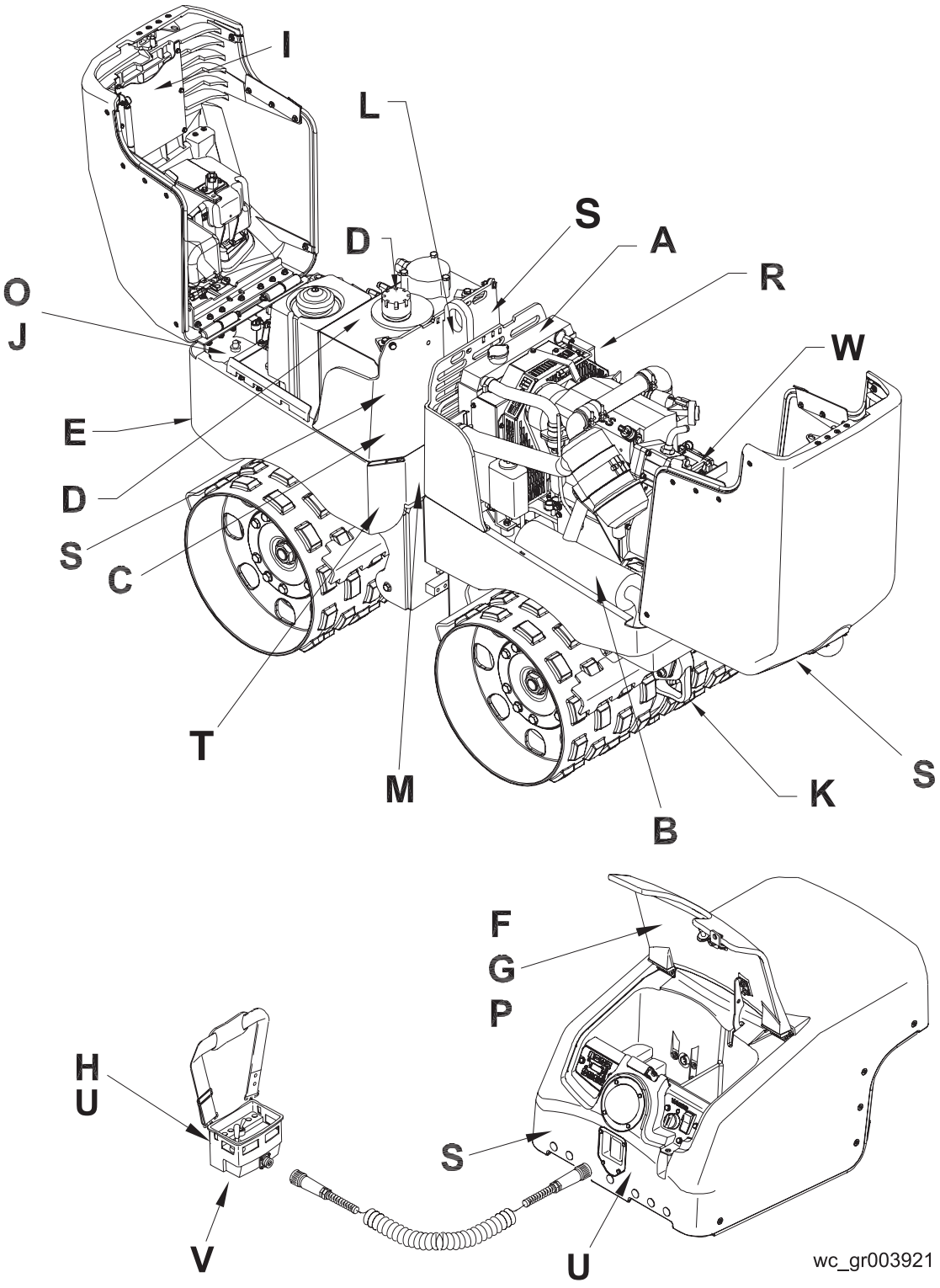
1.4.11 Do not use gasoline or other types of fuels or flammable solvents to clean parts, especially in enclosed areas. Fumes from fuels and solvents can become explosive.

1.4.12 Do not modify the machine without the express written approval of the manufacturer.

1.4.13 DO NOT leave SmartControl™ transmitter unattended while servicing machine.

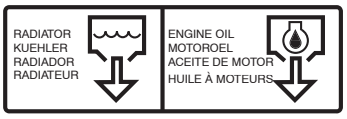
1.4.14 ALWAYS turn the engine off before servicing the machine. If the engine has electric start, disconnect the negative terminal on the battery before servicing the machine.

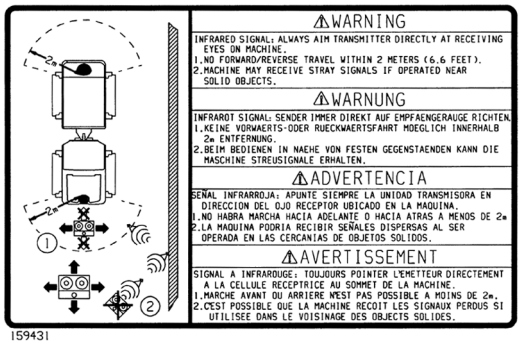
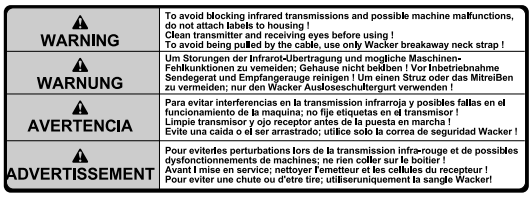
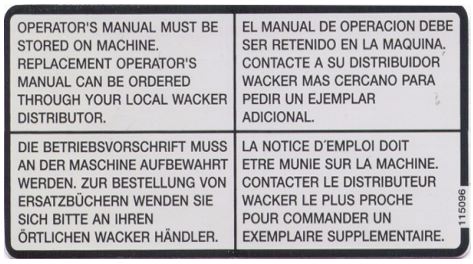
1.4.15 Label Locations

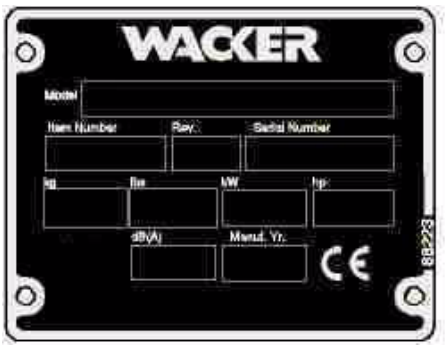


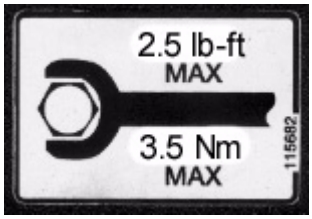
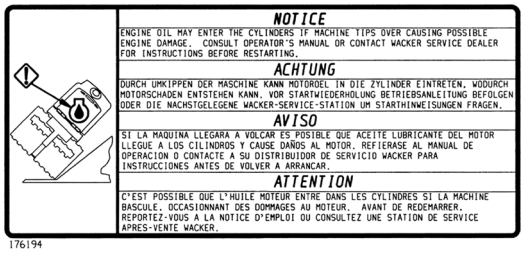
1.5 Warning and Informational Labels

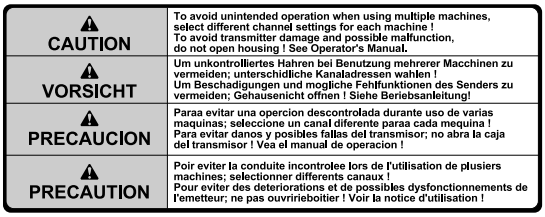
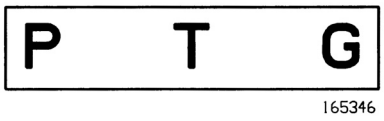
Wacker Neuson machines use international pictorial labels where needed. These labels are described below:

Ref.	Label	Meaning
A		WARNING! Pressurized contents. Do not open when hot!
B	 115415	WARNING! Hot surface!
C		WARNING! Pinch point.
D		Hydraulic oil reservoir fill tube.
E	 wc_sy0154325	Radiator/Engine Oil

Ref.	Label	Meaning
F		DANGER! Engines emit carbon monoxide; operate only in well-ventilated area. WARNING! Read and understand the supplied Operator's Manual before operating the machine. Failure to do so increases the risk of injury to yourself or others. WARNING! To prevent hearing loss, wear hearing protection when operating this machine.
G		WARNING! Infrared signal: Always aim transmitter directly at receiving eye on machine. 1. No travel when operator is within 2 meter (6.6 ft.) of front or rear of machine. Machine will operate when operator is within 2 meter (6.6 ft.) of either side of machine. 2. Machine may receive and react to signals reflected off objects.
H		To avoid blocking infrared transmissions and possible machine malfunctions, do not attach labels to housing! Clean transmitter and receiving eyes before using! To avoid being pulled by the cable, use only Wacker breakaway neck strap!
I		Operator's Manual must be stored on machine. Replacement Operator's Manual can be ordered through your local Wacker Neuson distributor.

Ref.	Label	Meaning
J		WARNING! Disconnect battery before servicing. Read the Operator's Manual.
K		Tie-down point
L		NOTICE Lifting point.
M		A nameplate listing the model number, item number, revision number, and serial number is attached to each unit. Please record the information found on this plate so it will be available should the nameplate become lost or damaged. When ordering parts or requesting service information, you will always be asked to specify the model number, item number, revision number, and serial number of the unit.
N		This machine may be covered by one or more patents.

Ref.	Label	Meaning
O		Torque battery hold-down nuts to 3.5 Nm (2.5 ft.lbs.) max.
P		NOTICE Engine oil may enter the cylinders if machine tips over, causing possible engine damage. Consult Operator's Manual or contact your Wacker Service Dealer for instructions before restarting.
Q		Guaranteed sound power level in dB(A).
R		WARNING! Pinching hazard. Rotating machinery.
S		CAUTION! Do not stand within 2m (6.6 ft.) of the machine when the amber control lights are flashing. The roller will respond to remote signals when the light is flashing.

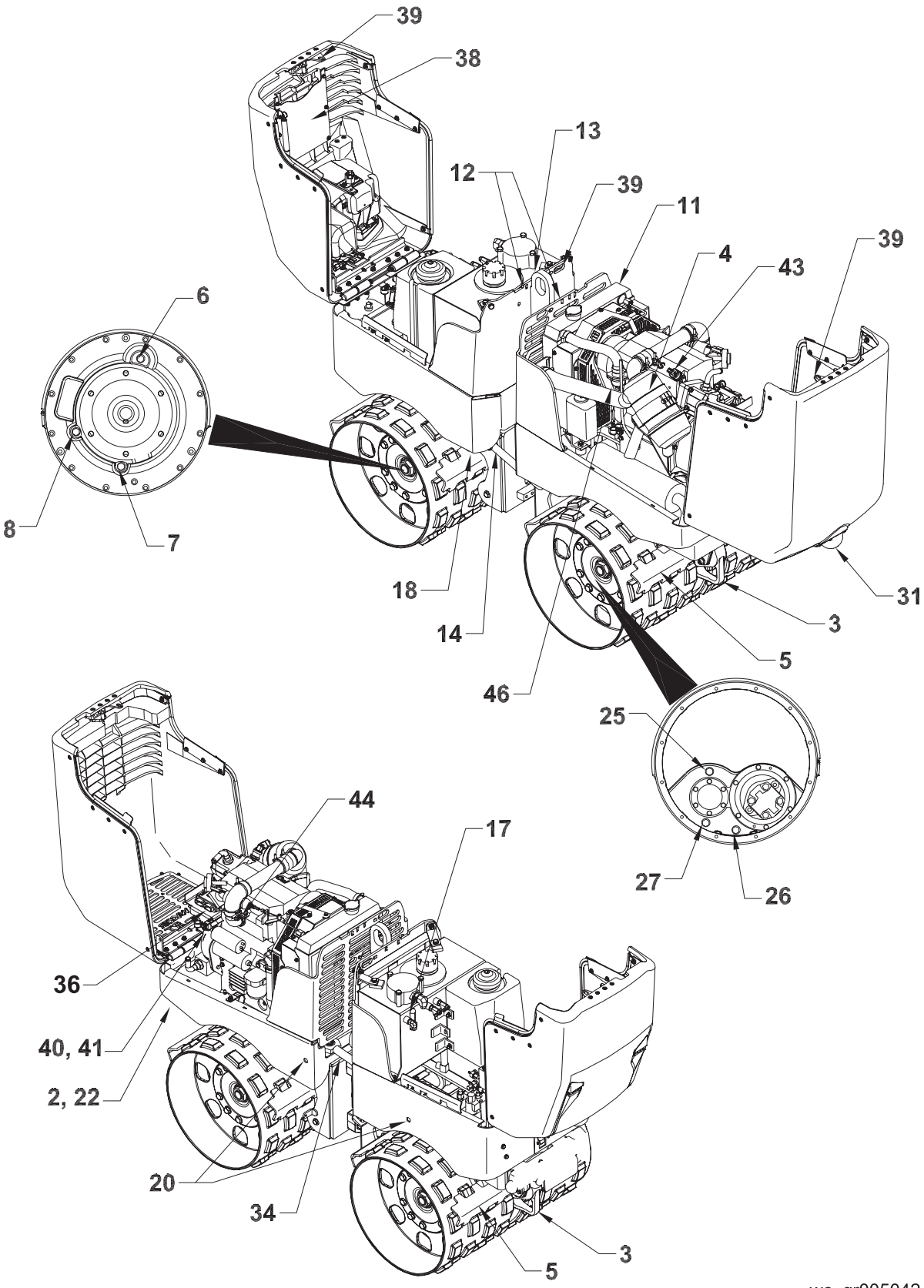
Ref.	Label	Meaning
T		Hydraulic oil drain.
U		To avoid unintended operation when using multiple machines, select different channel settings for each machine! To avoid transmitter damage and possible malfunction, do not open housing! See Operator's Manual!
V		Channel labels: Mark the operating channel on both the transmitter and roller. Replace original label with new when channels are changed.
W		P=Power relay T= Throttle relay G= Glowplug relay

2 Operation

2.1 Operation and Service Locations

See Graphic: wc_gr005042, wc_gr000235

Ref.	Description	Ref.	Description
1	Oil dipstick	25	Exciter fill plug
2	Engine oil drain plug	26	Exciter drain plug
3	Tie-down lugs	27	Exciter oil level plug
4	Air cleaner	28	Display panel
5	Scraper bar	29	SmartControl™ transmitter
6	Drive case fill plug	30	Charge cable
7	Drive case drain plug	31	Receiving eye/light ring
8	Drive case oil level plug	32	Oil cooler
9	Exciter pump	33	Docking port
10	Drive pump	34	Steering cylinder
11	Radiator	35	Decoder module
12	Hood latch	36	Engine Control Module (ECM)
13	Lifting eye	37	Latch
14	Articulated joint locking bar	38	Manual holder
15	Hydraulic tank	39	Hood locking tab
16	Hydraulic tank return line filter	40	System fuse - 20A
17	Hydraulic oil level sight gauge	41	Self-resetting circuit breaker - 50A
18	Hydraulic tank drain plug	42	Charge cord / Service box receptacle
19	Articulated joint grease fitting	43	Oil PSI switch
20	Steering cylinder grease fittings	44	Air filter restriction switch
21	Fuel tank	-	---
22	Radiator drain plug	46	High water temperature switch / Glow plug timer
23	Hydraulic manifold	47	Hood hinge grease fitting
24	Battery	-	---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Ref.	Description	Ref.	Description
1	Oil dipstick	25	Exciter fill plug
2	Engine oil drain plug	26	Exciter drain plug
3	Tie-down lugs	27	Exciter oil level plug
4	Air cleaner	28	Display panel
5	Scraper bar	29	SmartControl™ transmitter
6	Drive case fill plug	30	Charge cable
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11	Radiator	35	Decoder module
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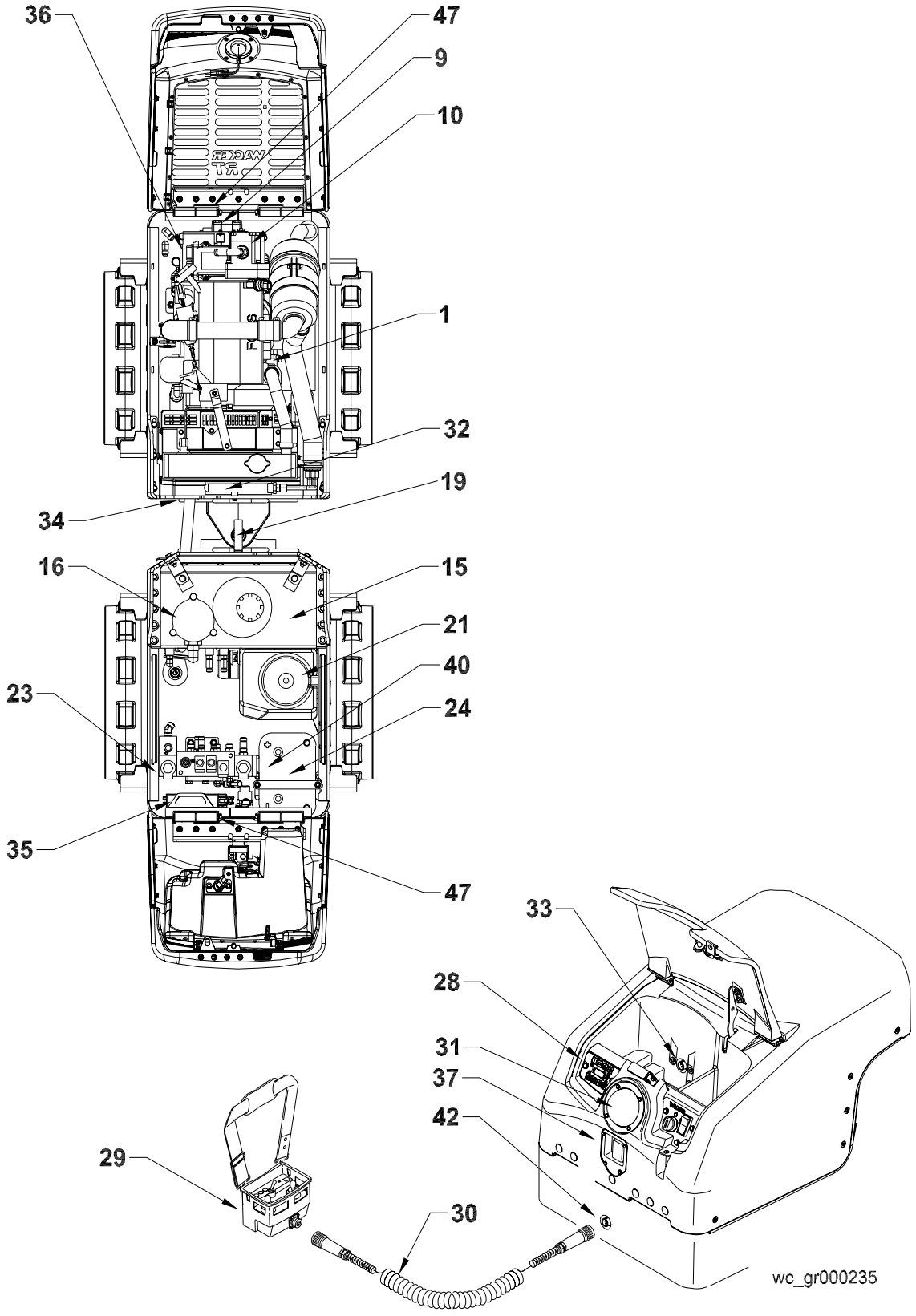
22	Radiator drain plug	46	High water temperature switch / Glow plug timer
23	Hydraulic manifold	47	Hood hinge grease fitting
24	Battery	-	---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2.2 Application

This machine is designed for compaction of sub-bases and backfill for foundations, roads, parking lots, etc. A selection of drum types, drum sizes, and two vibration modes ensures excellent compaction of cohesive-type soils. The drums protrude past the machine frame, making it ideally suited for working along trench walls, excavations, pipelines and backfill applications.

2.3 Control Features

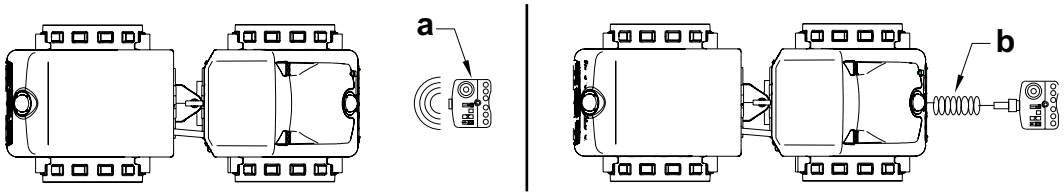
See Graphic: wc_gr000957

This machine is designed specifically for remote control operation. This feature protects the operator by allowing him or her to stand at a distance from the machine, and the work area, during operation. When used in excavations, it allows the operator to stand safely above the trench, rather than in it.

The SC-2 transmitter **(a)** is designed for infra-red (IR) remote-controlled operations only. The coil cord **(b)** is only used for charging the transmitter battery or supplying power to the transmitter when there is no battery. No control signals are sent through the cord.

The infra-red system includes the transmitter and two receiving eyes. This system provides wireless line-of-sight operation up to 20 meters (65 feet). It uses a hand-held transmitter to transmit signals to the receiving eyes on the machine to control machine operation. Only one eye needs to receive a signal for proper operation.

When operating multiple rollers within 20 meters (65 feet) of one another, it is possible that the transmitter from one roller can inadvertently take control of another roller. This can occur when multiple rollers are set to the same control channel as that of one transmitter. To prevent the transmitter from one roller inadvertently taking control of another roller, be certain that each roller and its accompanying transmitter are set to a different control channel than the other rollers/transmitters being used within the area. Refer to section *Infra-red System and Control Channels* for additional information.



wc_gr000957

2.4 Accessing the Engine or Hydraulic Compartment

See Graphic: wc_gr001725

To access the engine or hydraulic component compartments:

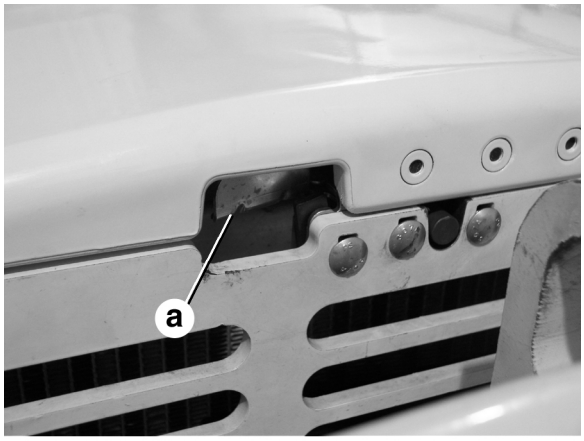
2.4.1 Reach into slot in cover and press latch release **(a)** until latch opens.

2.4.2 Raise hinged cover and place in the open position.

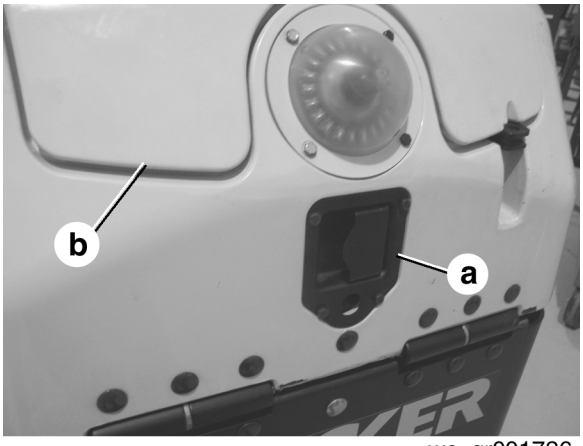
To close:

2.4.3 Position cover over the compartment, near the closed position.

2.4.4 Being careful not to pinch fingers or hands, release cover and allow weight of cover to engage latch.



wc_gr001725



wc_gr001726

2.5 Accessing the Control Compartment

See Graphic: wc_gr001726

To access the control compartment:

CAUTION

The control compartment lid is spring-loaded and opens with moderate force. Stay clear of lid when opening. The lid may strike you if you are too close when opening.

Do not place objects on lid when opening. Objects may be propelled.

2.5.1 Pull latch **(a)** handle to release latch.

To close:

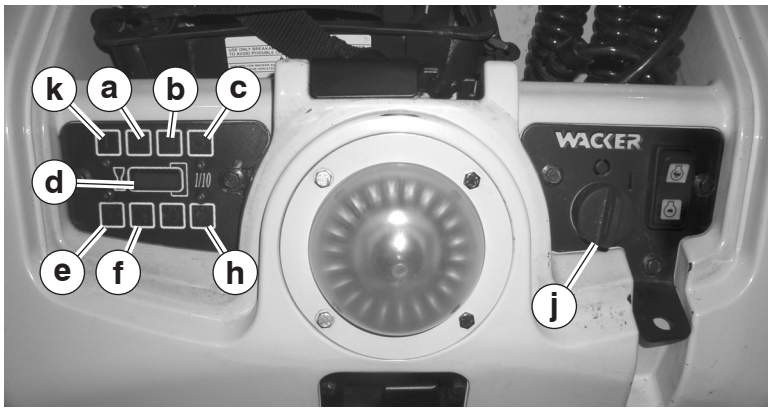
2.5.2 Position cover over the compartment, near the closed position.

2.5.3 Being careful not to pinch fingers or hands, with hand on top side of lid **(b)**, force the lid into the closed position until the latch secures lid.

2.6 Control Panel

See Graphic: wc_gr005043

The control panel is mounted to the dash under the back hood access cover of the machine. It contains the following features:



wc_gr005043

2.6.1 Charging System Light (a)

The engine is equipped with an alternator and voltage regulator to maintain the battery charge. The charging system warning light illuminates when there is a malfunction of the system. Although the machine will run with the light on for a short period of time, continued operation will drain the battery and eventually cause the machine to lose all operating functions.

CAUTION

If the system warning light illuminates while operating the machine in a narrow trench or other confined area, drive machine into a safer area as soon as possible to avoid stranding it in a hazardous or inaccessible location.

2.6.2 Glow Plug Light (b)

The engine is equipped with an automatic glow plug system that pre-heats the combustion chambers to improve normal and cold weather starts. The glow plug light illuminates when the keyswitch and the transmitter ON/OFF switch are placed in the **I** (ON) positions. It will go off when the combustion chambers are pre-heated.

Note: *Allow 5 minutes for the engine to warm up before operating the roller.*

2.6.3 Air Cleaner Light (c)

The air cleaner warning light illuminates when the air filter cartridge needs to be replaced.

2.6.4 Hour Meter (d)

The hour meter records the actual running time of the engine. Use the hour meter when planning scheduled maintenance.

2.6.5 Engine Oil Pressure Light (e)

The oil pressure warning light illuminates when oil pressure falls below the engine manufacturer's recommended value. During such a condition, the engine will automatically shut down.

2.6.6 Coolant Temperature Light (f)

The cooling temperature warning light illuminates when engine coolant temperature exceeds 230°F (110°C). During such a condition, the engine will automatically shut down.

Note: *Allow temperature to drop below 212°F/100°C before attempting to restart.*

2.6.7 Tip Over Light (h)

The tip over warning light illuminates or flashes (depending on the tip over mode) when the pitch of the roller exceeds 45°. The machine is equipped with safety switches that shut down the engine during such a condition.

2.6.8 Keyswitch (j)

Turning the keyswitch to the **I** (ON) position supplies power to the machine. The green power-on indicator **(k)** illuminates indicating power is on.

The keyswitch has an automatic shutoff feature that after 1 hour of non-engine run time, the electronics will power off. To reset the machine, turn the keyswitch to the **O** (OFF) position and then back to the **I** (ON) position.

Note: *The machine can be restarted within this 1-hour period if the transmitter is turned off and then on. The glow plugs will be activated if needed.*

All shutdown functions have the feature that when a fault is detected, the warning light and red LED light rings will remain on after the machine shuts down, until the fault is corrected, and the keyswitch is turned to the **O** (OFF) position.

All shutdown functions and the air filter restriction circuit have built-in circuitry to detect a possible bad sensor, unplugged sensor, or a cut or damaged wire to the sensor. Whenever any of these sensor faults occur, the corresponding control panel light will flash on and off.

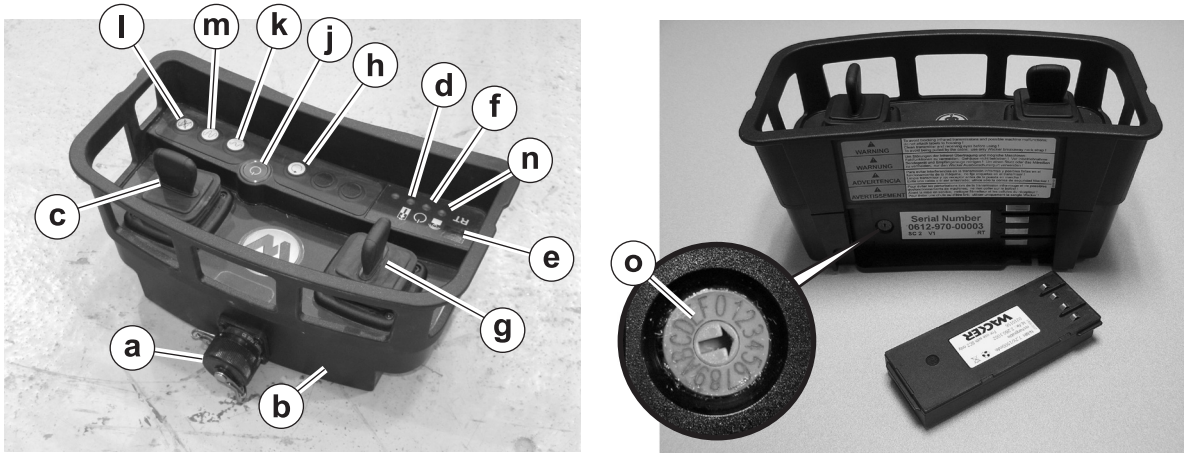
2.7 SmartControl™ SC-2 Transmitter

See Graphic: wc_gr006335

- Wireless control
- Line of sight operation
- 16 control channels
- Clear transmissions into direct sunlight, up to 100,000 LUX
- Maximum range: 20m (65 ft.)
- Transmitting time (full charge): 12 hours
- Recharge time (full charge): 2-1/2 hours
- Battery: Ni-MH (nickel metal halide) battery pack

The standard operating controls include*:*

Ref.	Description	Ref.	Description
a	Cable connector	h	Engine START pushbutton
b	Infrared emitting diodes	j	ON/OFF pushbutton
c	Forward/reverse joystick	k	LOW vibration pushbutton
d	Battery charge indicator (green LED)	l	Vibration OFF pushbutton
e	Near field transmitting diodes	m	HIGH vibration pushbutton
f	Power ON indicator (green LED)	n	Signal transmission indicator
g	Left/right joystick	o	Control channel selector switch



wc_gr006335

2.7.1 Cable connector (a)

The cable connector provides battery charging capabilities. Transmitter batteries can be recharged using the cord while the engine is running, or during non-working hours using the docking port.

2.7.2 Infra-red emitting diodes (b)

The diodes are used to transmit the coded infra-red signal to the receiving eye on the machine. Keep the window in front of the diodes clean to ensure maximum signal strength.

2.7.3 Forward/reverse joystick (c)

The right joystick controls forward/reverse motion of the machine. Move the joystick in the direction desired. The roller will change to high speed whenever the right joystick is placed fully in the forward or fully in the reverse position.

2.7.4 Battery charge indicator (green LED) (d)

This LED displays the state of the battery charge. It illuminates when the battery is charging. It goes off when the battery is fully charged. It flashes if no high-speed charge is possible.

2.7.5 Near field LEDs (e)

These LEDs are part of the machine's sensing system which stops the machine when the operator, and transmitter, are located within 1 m (3 ft.) of the machine.

2.7.6 Power ON indicator (green LED) (f)

When the red transmitter ON/OFF pushbutton **(j)** is in the (ON) position, this light blinks, indicating that the SmartControl™ SC-2 transmitter is ON and ready for operation.

2.7.7 Left/right joystick (g)

This joystick controls left/right motion of the machine. Move the joystick in the direction desired.

2.7.8 Engine START pushbutton (h)

Pushing this button causes the engine to crank. An override prevents the engine from cranking if it is already running.

2.7.9 Transmitter ON/OFF pushbutton (j)

Pressing this pushbutton turns on and off the SmartControl™ SC-2 transmitter. When on, the Power ON indicator (green LED) **(f)** illuminates.

Note: *The transmitter automatically turns itself OFF after 10 minutes of inactivity.*

2.7.10 Low vibration pushbutton (k)

Pressing this button causes the vibration to turn on in LOW.

2.7.11 High vibration pushbutton (m)

Pressing this button causes the vibration to turn on in HIGH.

2.7.12 Vibration pushbuttons (k or m)

Pressing either vibration pushbutton will cause the roller to drop out of high speed travel; conversely, when vibration is on, the roller cannot go to high speed.

When shifting from one vibration mode to the other, the exciter weights must come to a complete stop and reverse direction. Therefore, a 7-second delay has been built into the control circuit.

2.7.13 No vibration pushbutton (l)

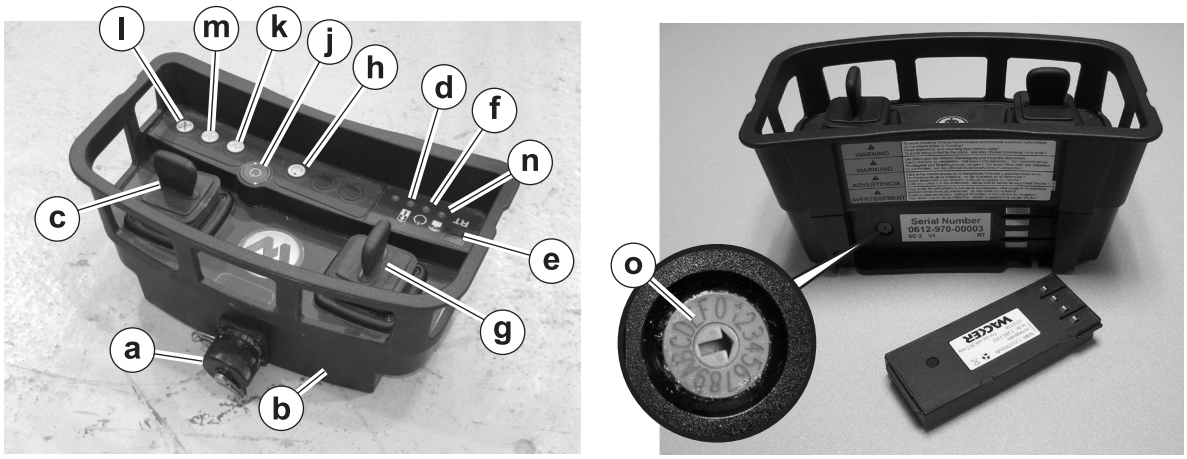
Pressing this button causes all vibration to stop.

2.7.14 Signal transmission indicator (n)

To aid in diagnostics, this LED blinks any time a signal is sent to the roller.

2.7.15 Channel selector switch (o)

This rotary switch sets the communication channel of the transmitter. When set to match that of the decoder module, the transmitter can control the machine.



wc_gr006335

2.8 Infra-red System and Control Channels

See Graphic: wc_gr003923

The infrared (IR) system consists of three main components: the SmartControl™ SC-2 transmitter **(a)**, the receiving eyes **(b)**, and the decoder module **(c)**.

The receiving eyes are positioned on the top of the machine enclosed within protective lenses. They receive, filter and amplify the infrared transmission. They include:

- An integrated pre-amp to strengthen signal input
- IR correction, to filter outside light interference
- A frequency range of 500 kHz

There is an amber LED **(d)** on the base (bottom) of each eye. When illuminated, the amber LED indicates:

- Electric power is being supplied to the eye. The LED illuminates for the first 1–2 seconds after power has been applied (key switch is turned on).
- The eye is receiving a signal from the SmartControl™ SC-2 transmitter module. The LED will remain on during operation.

The decoder module is positioned behind the hydraulic manifold at the back of the machine. It receives, decodes, and outputs the signal from the transmitter module. It is also the electric power supply for all hydraulic solenoids.

The IR system can be set to one of sixteen different control channels. Using different channels allows multiple rollers to operate in the same area without interference. Whenever multiple rollers are operated within 20 meters (65 feet) of one another, make certain each roller and its accompanying transmitter is set to a different control channel than the other rollers/transmitters being used within the area.

Channel selection rotary switches **(e** and **f)** are included on both the transmitter module and on the decoder module. The switches come from the factory set to the last digit of the machine's serial number. For proper operation, BOTH switches must be set to the SAME channel. The channel of each transmitter/machine pair is identified by a label on both on the transmitter and the machine.

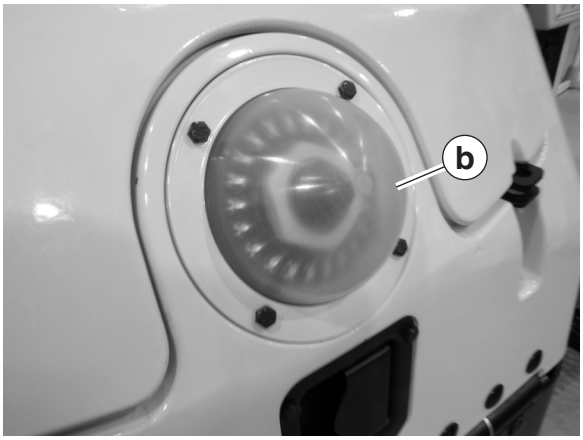
To change the control channel:

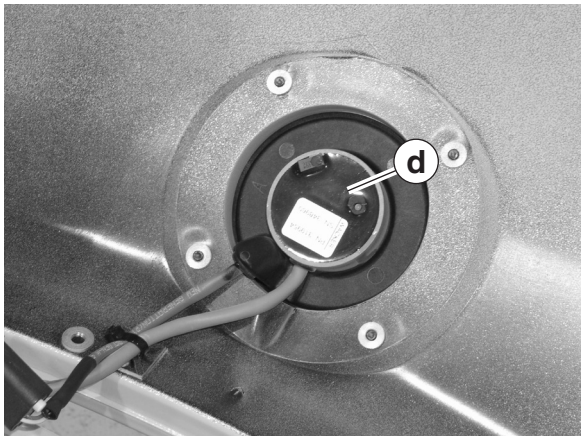
2.8.1 Remove the transmitter module battery and rotate the selector switch to the desired position. Re-install the transmitter module battery.

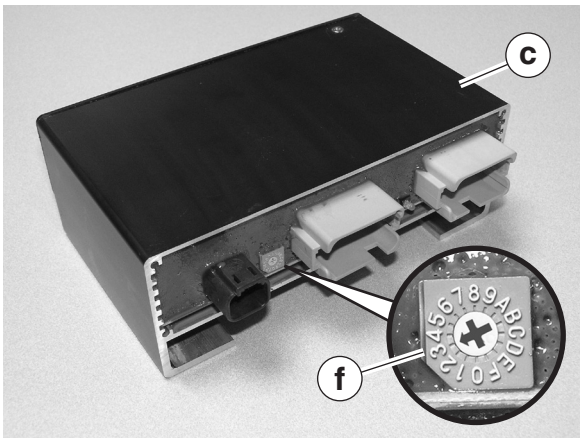
2.8.2 Set the rotary switch on the decoder module to the same position as that of the rotary switch on the transmitter module.

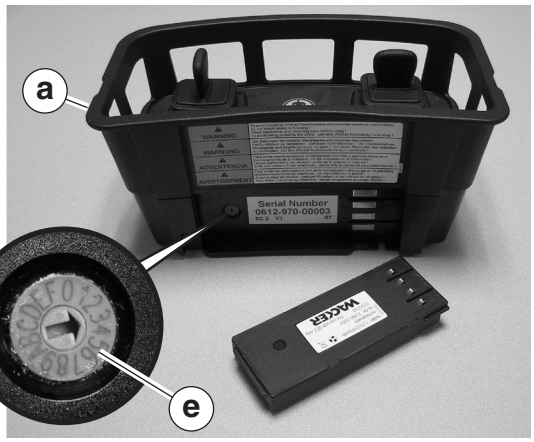
2.8.3 To determine if the decoder module and the transmitter module are set to the same channel, turn the key switch to the ON position and set the transmitter module's ON/OFF switch to the ON position. The amber lights on the machine's light ring should blink at a slow rate indicating that the machine is receiving signals from the transmitter module. If the amber lights illuminate but do not blink, the transmitter module and the decoder module are not set to the same channel.

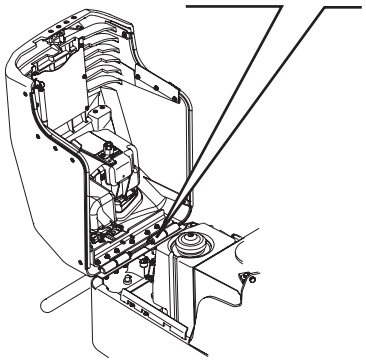
2.8.4 Change the channel identification label to match the selected channel each time the channel is changed. Channel identification labels are supplied with the Operator's Manual.











wc_gr003923

2.9 Before Starting

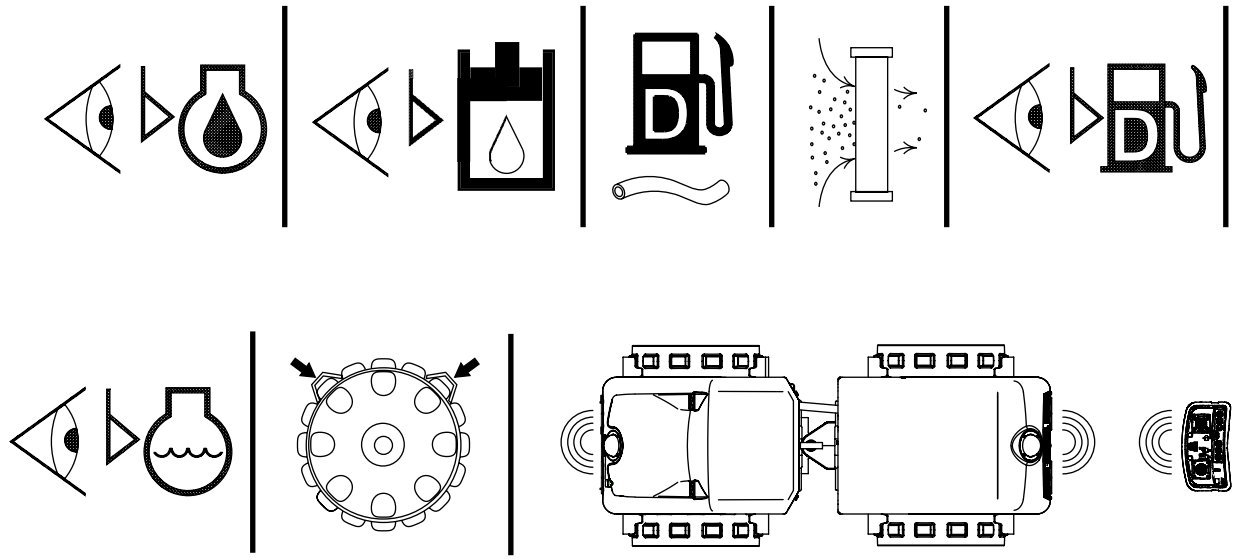
See Graphic: wc_gr0003062

Before starting the machine check the following:

- Engine oil level
- Hydraulic fluid level
- Condition of fuel lines
- Condition of air cleaner
- Fuel level
- Water level
- Scraper bars are clean and properly adjusted
- Check that the SmartControl™ transmitter module and the machine's decoder module are set to the same control channel.

Note: *All fluid levels should be checked with the machine on a level surface.*

Ensure that regular maintenance has been carried out.



wc_gr003062

2.10 Starting

See Graphic: wc_gr006336

2.10.1 Place the throttle switch **(b)** in the idle (slow) position.

2.10.2 Turn the key switch **(a)** to the **I** (ON) position. All lights on the display/ control panel and the light ring **(q)** (both red and amber) will illuminate for a 5-second LED test. After 5 seconds, all lights go off except the power ON indicator **(h)**, charge indicator **(i)**, engine oil pressure indicator **(l)**, and the amber LEDs of the light ring which remain illuminated.

2.10.3 Turn on the SmartControl™ SC-2 transmitter by pressing the red ON/ OFF pushbutton **(d)**. Make sure the amber indicator lights in the light rings **(q)** are flashing at a slow rate. This indicates infrared reception and that the transmitter is at the correct distance from the machine. If they are not flashing, it indicates that either the transmitter is not on or that the control channel of the transmitter does not match the control channel of the machine. If they are flashing at a fast rate (three times per second), it indicates that the transmitter (and operator) are too close to the machine. Reposition the SmartControl™ SC-2 transmitter so that the indicator lights flash at a slow and steady rate. If you are operating multiple rollers, check to make certain each roller and its accompanying transmitter are set to a different control channel.

2.10.4 After approximately 2 seconds, if engine conditions dictate (coolant temperature too cool), the glow plug indicator **(j)** will illuminate and the light ring will flash red, signifying that the glow plugs are on. The colder the engine coolant temperature, the longer the glow plugs will stay on; approximately 30 seconds at 0°C (32°F).

Note: *The starter will not crank when the glow plugs are on.*

2.10.5 Immediately after the glow plug light **(j)** and red light ring **(q)** go out, press the engine start pushbutton **(g)** and hold it down until the engine starts. If the machine fails to start within 20 seconds of cranking, release the engine start pushbutton. Press the red ON/OFF pushbutton to turn the transmitter off. Wait 30 seconds, then turn the transmitter back on and repeat the starting procedure.

2.10.6 Once started and sufficient oil pressure is sensed, the oil pressure indicator will go out.

2.10.7 Allow the unit to warm up a minimum of 5 minutes before engaging the throttle switch **(b)** to the *high* (fast) position.

2.11 Stopping

See Graphic: wc_gr006336

2.11.1 Turn the vibration off by pressing vibration off pushbutton **(f)**.

2.11.2 Place the throttle switch **(b)** in the idle (slow) position.

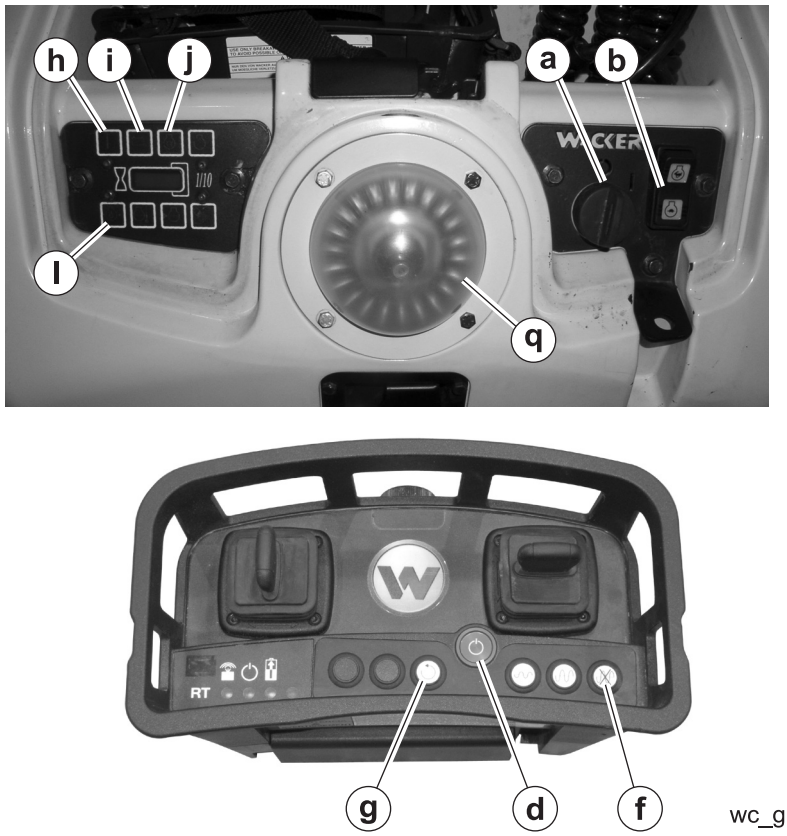
Note: *The engine cannot be shut down using the throttle control alone. The throttle switch only changes the engine speed from high (fast) to idle (slow).*

2.11.3 Turn off the SmartControl™ SC-2 transmitter by pressing the red ON/OFF pushbutton **(d)**. The machine's engine will shut down.

2.11.4 Turn the key switch **(a)** to the **O** (OFF) position.

Note: *The machine has a built-in shutoff timer. If the key is left in the ON position when the engine is not running, the timer will shut off the power to the control panel after one hour.*

A parking brake is located in the rear drum. The brake is connected to the hydraulic system through the brake valve of the control manifold. The brake is spring activated and hydraulically disengaged. Hydraulic oil flow to the brake is enabled as soon as the engine starts. Thus, when the engine is running, the brake is disengaged; when the engine is not running, the brake is engaged.



wc_gr006336

2.12 Light Ring Color Codes

Color—Code	Mode	Reason / Remedy
Amber—solid	Non communication	Machine's key in ON position, but: • Transmitter is not turned on. • Transmitter battery is dead. • Transmitter not pointed at machine. • Transmitter too far from machine. • Transmitter and decoder are on different channels.
Amber—slow flash	Normal operation	Machine is receiving proper signal from transmitter and is operational.
Amber—fast flash	Operator safety	Machine is receiving signal but operator is too close to machine. • Move further than 2 meters from machine until amber lights flash slowly.
Red—solid	Machine shut down	Critical error has occurred such as: tip over, low oil pressure, or high coolant temperature. • For tip over: Turn key OFF, upright machine. See section *Setting the ECM Tip Over Mode*. • For low oil pressure: Turn key OFF. Check oil. Restart as normal. • For high coolant temperature: Turn key OFF. Allow machine to cool. Add coolant.
Red—slow flash	Automatic glow plug	Glowplugs are preheating engine. No functions allowed until preheat cycle is complete.
Red—fast flash	Over voltage	Machine is receiving more than 18 Volts due to non-12V system used for jump starting. • Replace machine's 12V battery. • Do not jump start the machine.

Notes

2.13 Operation

See Graphic: wc_gr000959

Clean the transmitter and receiver eyes prior to operation.

Keep the transmitter pointed at either of the receiving eyes on the machine for continued operation. The light ring amber LEDs will blink to show that the machine is receiving signals from the transmitter.

The infrared system is equipped with an operator distance sensing system. If the operator is standing within 1–2 m (3–6 ft.) of the front or rear of the machine, the amber light ring will flash rapidly, and the machine will not travel forward/reverse or vibrate until the operator moves outside the 1–2 m (3–6 ft.) distance. Once the operator is at the correct distance, the amber lights will flash slowly to indicate the machine can be operated.

Note: *The control cable is not needed for using the infrared system.*

The SmartControl™ SC-2 transmitter battery can be recharged at the end of operation by connecting the transmitter receptacle **(b)** to the battery docking port **(c)**. See *Charging Transmitter Batteries*.

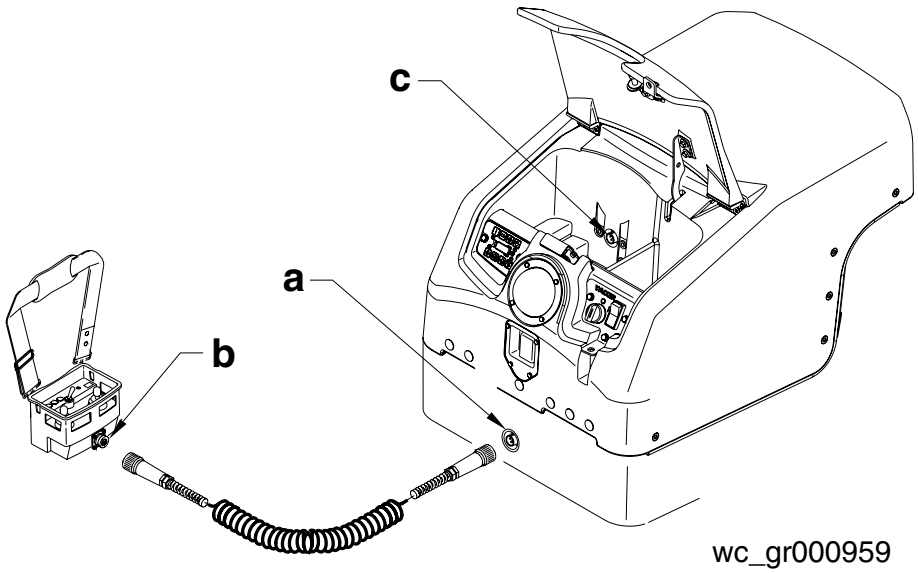
The Cable Control System will only charge the transmitter battery if the control cable is connected to the transmitter receptacle **(b)** and plugged into the port **(a)** in the back of the roller.

CAUTION

Multiple rollers are not to be operated within 20 meters (65 feet) of one another, unless you are certain you have each roller and its accompanying transmitter set to a different control channel than the other rollers/transmitters being used within the area. Refer to section *Infra-red System and Control Channels* for additional information. Failure to assign different control channels can, in certain circumstances, cause one transmitter to inadvertently take control of more than one machine.

WARNING

Always use the SmartControl™ SC-2 transmitter neck strap provided by Wacker while operating with the control cable connected. This neck strap is designed to break away so that the operator will not be dragged by the machine should the machine slide, tip, or fall.



wc_gr000959

2.14 Position of Operator

See Graphic: wc_gr003925

Although either receiving eye on the machine can receive signals from any direction, the switches on the transmitter are positioned so that they correspond to the movements of the machine with the operator standing BEHIND it.

For example, when standing behind the machine **(a)**, pushing forward on the forward/reverse joystick causes the machine to move away from the operator, pushing left on the steering joystick results in the machine turning left, etc.

As the operator changes positions in the work area, it is important that he or she understand the changes that will occur in the control of the machine.

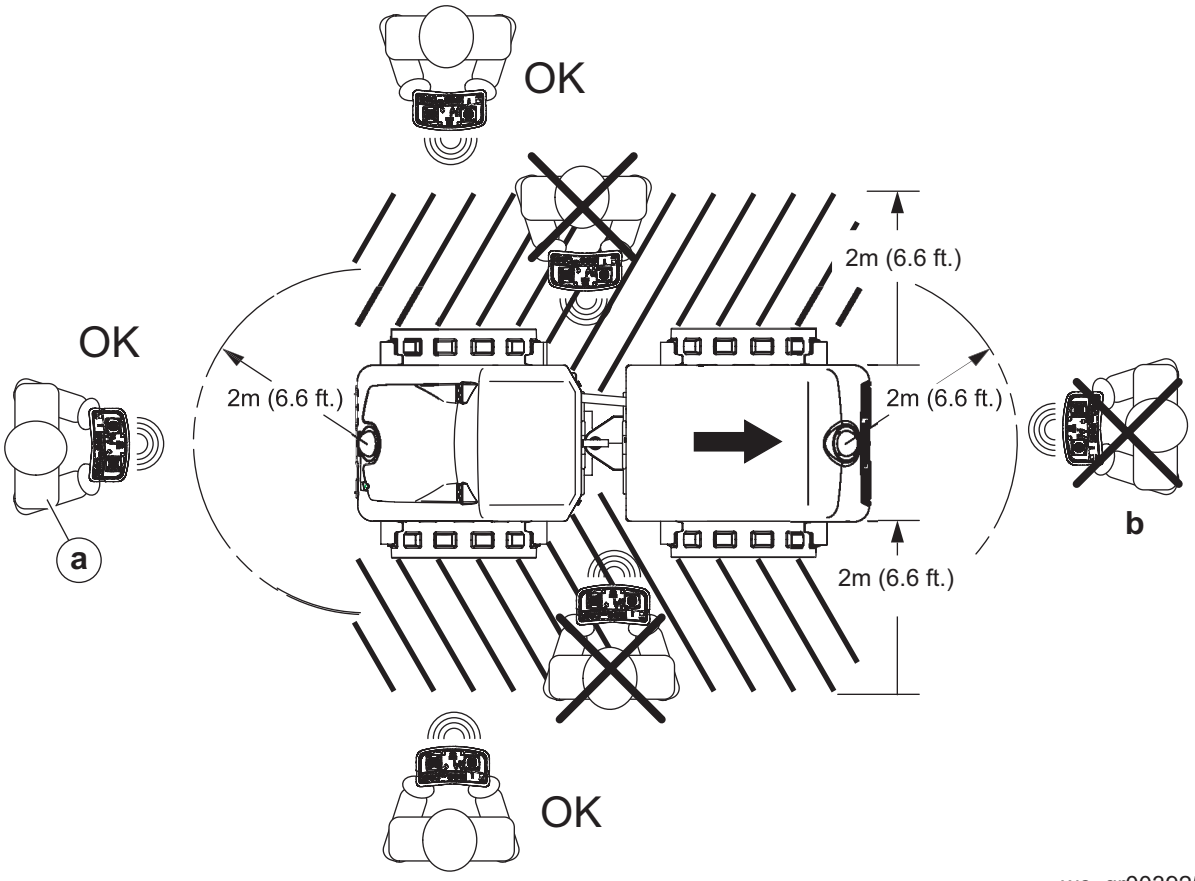
If the operator stands in front of the machine **(b)**, it will respond in a direction opposite in relation to the operator. That is, pushing forward causes the machine to move toward the operator, pushing left results in the machine turning to the operator's right. Operating the machine while standing in front of it is not recommended.

WARNING

Do not stand closer than 2m (6.6 ft.) to the roller when operating the roller from either side. The roller's sensing system will not stop the roller from moving when the transmitter is on the side of the roller. The machine senses its distance from the transmitter only to the front and rear of the machine when the receiving eyes have a clear view of the transmitter. When operating from the side of the machine, always maintain a distance of at least 2m (6.6 ft.) from the machine.

WARNING

The roller will stop if it approaches the operator but will not stop if it approaches other personnel. ALWAYS be sure that all other persons are at a safe distance from the machine. Stop the machine if people step into the work area of the machine.

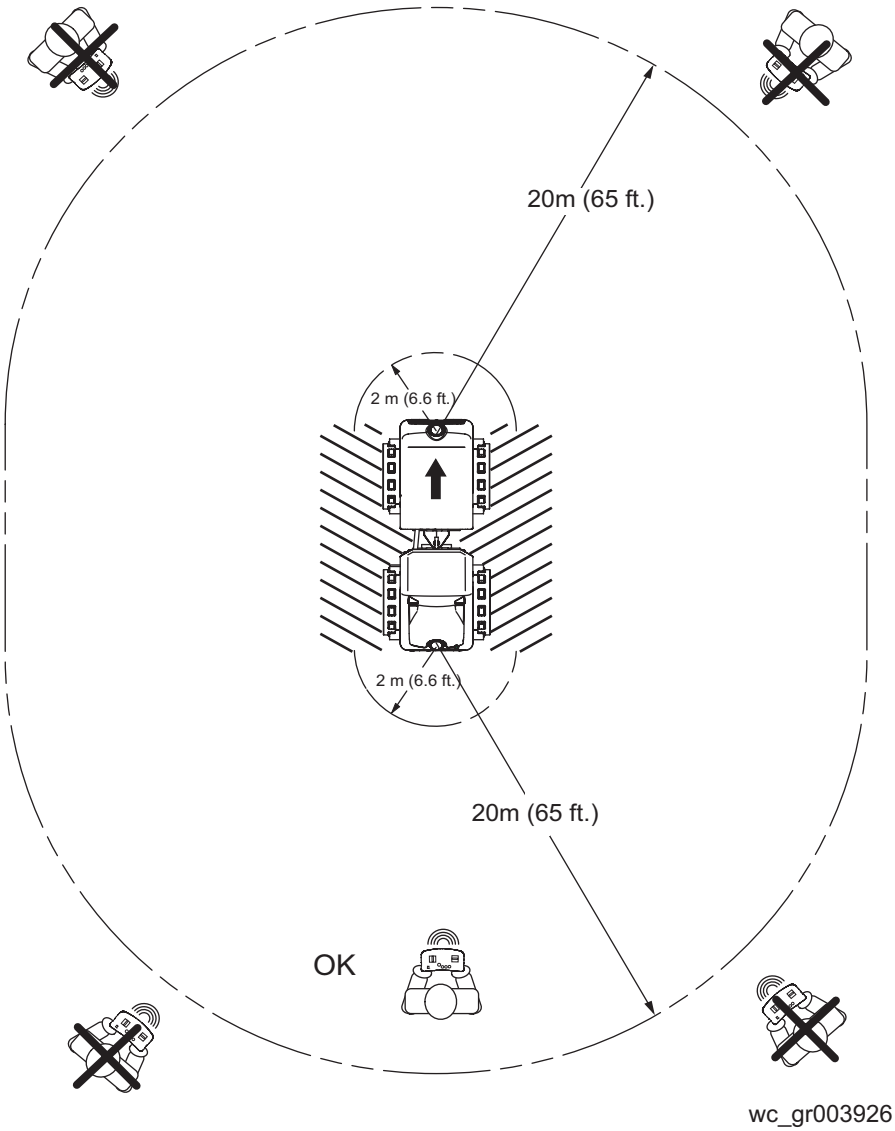

OK
OK
2m (6.6 ft.)
2m (6.6 ft.)
2m (6.6 ft.)
a
b
OK
wc_gr003925

2.15 Range Limits

See Graphic: wc_gr003926

The transmitter signal will remain in contact with the machine at distances up to 20 m (65 ft). If operating into direct sunlight or with a low battery charge, the operating range may decrease.

If the machine moves out of range, the amber lights on the machine will stop blinking and come on continuously. The machine will immediately stop moving. The operator must then move closer to the machine to re-establish contact. If contact is not made within 30 seconds, the engine will shut off.



wc_gr003926

2.16 Operating Characteristics

In some instances, objects passing between the machine and transmitter (such as support beams) will block the signal. When this occurs, the machine will stop moving. If the signal is not re-established within 30 seconds, the engine will shut down.

In an enclosed area (such as a shop floor or warehouse) or an area surrounded by large structures, the infra-red signal may reflect off surrounding surfaces, causing it to be picked up by the machine even when the transmitter is pointed away from the machine. This condition is more pronounced at shorter distances when the signal strength is strong.

As the distance between the transmitter and machine increases, the intensity of the signal diminishes.

2.17 NiMH Battery

The battery used to power the transmitter is a high capacity Nickel Metal Hydrite (NiMH) cell rated at 2000 mAh and is capable of accepting hundreds of charging cycles. If the machine fails to operate for the full operating period, even after the battery has been fully discharged and recharged, the battery pack may need to be replaced.

Charging characteristics:

- Time to fully charge: 2 hours
- Full-charge operating time: 16 hours*
- Operating time after 1 hour charge: 8 hours*
- At temperatures below 0°C, charging is not possible

** Operating time decreases at severely cold temperatures*.

2.18 Replacing the Battery Pack

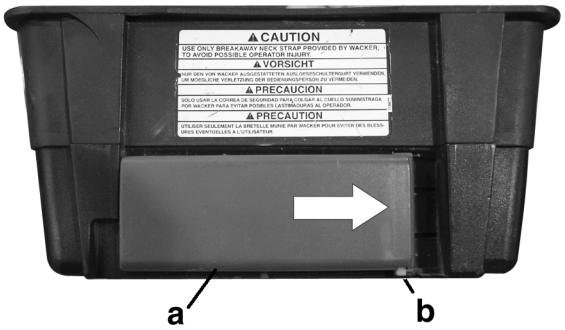
See Graphic: wc_gr001666

The battery pack **(a)** on the back of the transmitter should be replaced once a year or when it no longer holds a full charge.

To replace the battery pack press the orange tab **(b)** and slide the battery pack out.

Note: *A new battery may not be fully charged. After replacing the battery, charge it for approximately one hour to ensure it is at full capacity.*

Note: *In the interests of environmental protection, dispose of used batteries properly. DO NOT dispose in trash, or incinerate.*



wc_gr001666

2.19 Charging Transmitter Battery

See Graphic: wc_gr001031

The NiMH battery pack **(b)** in the transmitter has enough capacity to provide16 hours of continuous operation. To maintain battery capacity, recharge it during non-working hours by using the onboard docking port.

Note: *There is no need to run the NiMH battery completely down before recharging. The battery can be recharged from any state of discharge with no loss in performance or life.*

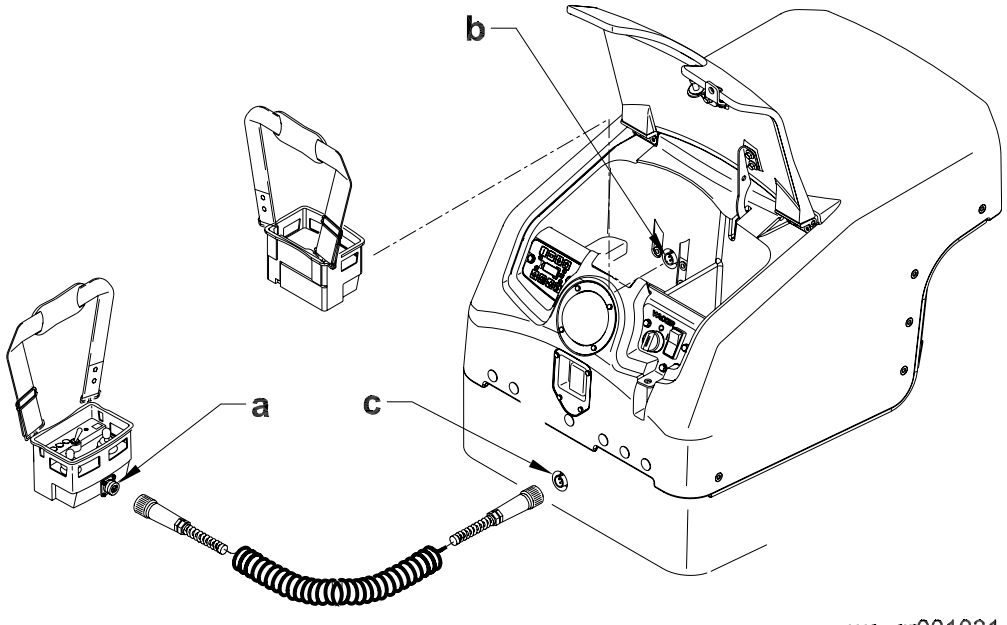
To charge battery, perform one of the following procedures:

- Plug the transmitter receptacle **(a)** into the charging port **(b)**. Slide the transmitter forward until the battery charge light comes on.
- Plug one end of the control cable into the transmitter receptacle **(a)** and the other end into the port **(c)** on the back of the machine.

Note: *Using the second method requires the machine to be running or the keyswitch to be in the "ON" position.*

Approximately 2 hours is required to bring the transmitter battery up to full charge. This is the most efficient way to use the battery. The transmitter will operate with a partially charged battery; however, its operating time will be reduced accordingly.

Note: *The charging circuit in the transmitter is self-regulating and limits the charging current to the battery, so that the battery cannot be overcharged.*



wc_gr001031

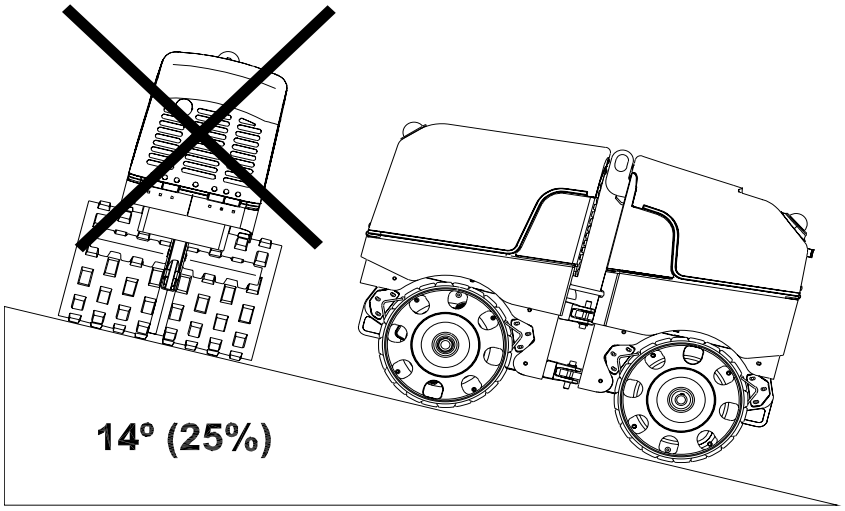
2.20 Operation on Slopes

See Graphic: wc_gr000238

When operating on slopes or hills special care must be taken to reduce the risk of personal injury or damage to the equipment. Whenever possible, operate machine up and down hills rather than from side to side to improve stability and reduce the possibility of a rollover. The machine is equipped with safety switches which will shut down the engine should the side-to-side operating angle exceed 45°. Forward/ backward tilt is not limited by the safety switches. For safe operation and for protection of the engine, continuous duty use should be restricted to slopes of 14° (25% grade) or less.

DANGER

NEVER operate machine on side slopes greater than 26° (50% grade). At slopes greater than this, the machine may roll over, even on stable ground.



wc_gr000238

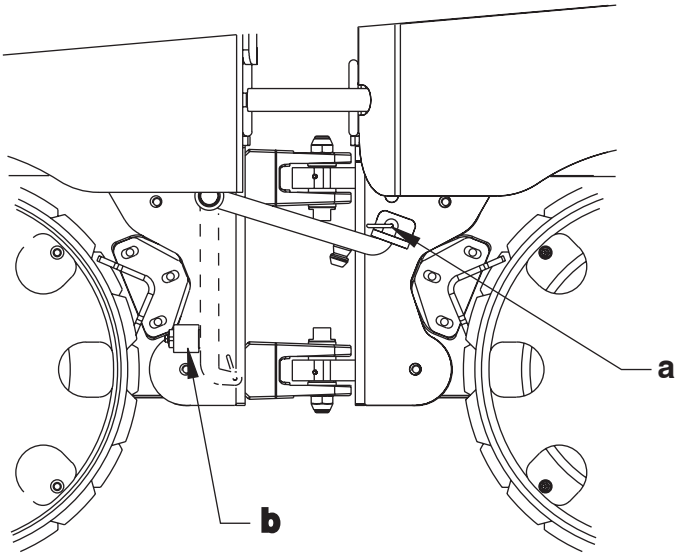
2.21 Articulated Joint Locking Bar

See Graphic: wc_gr000239

A bar is provided to lock the articulated joint, and prevent the two machine halves from swinging together.

When lifting or jacking up the machine, secure the articulated joint with the bar as shown. Hold bar in position using the cotter pin **(a)** provided.

When operating the machine, place the bar in the storage clamp **(b)** as shown.



wc_gr000239

2.22 Tip-Overs

Proper operation of the machine on slopes will prevent rollovers. If a machine tip-over does occur, care must be taken to prevent damage to the engine. In this position, oil from the engine crankcase can flow into the combustion chamber, which can severely damage the engine next time it is started. If the machine has rolled on its side, **immediate** steps should be taken to right the machine.

NOTICE: To prevent damage to the engine after a tip-over, the machine must NOT be started, AND must be serviced to remove any oil that may have been trapped in the combustion chambers. Contact your local Wacker dealer for instructions or servicing.

A tip over is indicated by the tip-over light which flashes when in the “FLASH LED” mode or stays on solid when in the “LOCK OUT START” mode. See section *Programing the ECM Tip Over Mode*.

2.23 Overview of the ECM and the Diagnostic Tool

The RT SC-2 Roller features an Engine Control Module (ECM) with diagnostic and programmable abilities. The diagnostics are conveyed via alpha-numeric codes displayed on three LED displays that are viewable through the plastic case of the ECM. These diagnostic/ program abilities include:

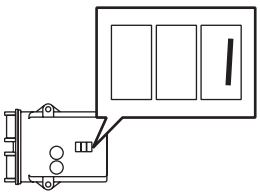
- The ability to view the stages of engine start-up.
- The ability to view seven fault conditions and over 35 error codes.
- The ability to lockout or allow engine start after a machine tip-over.

A diagnostic tool, which comes standard with the machine, is used to interface with the ECM.

2.24 ECM Stages of Engine Start Up

The ECM displays codes as the machine goes through the start up sequence. These codes are described below.

Note: *It is not necessary to enter the diagnostic mode to view these codes.*



Code	State	Description
• 8.8.8 for 3 seconds • E 1.x for 2 seconds • F_L or F_O for 3 seconds	Power up	Power up delay cycle. Software version. Current tip over/roll over mode.
1	Stop/Idle	During this state, power is applied to the ECM and decoder but the engine is off. The ECM is waiting for the start signal to initiate the glow plug cycle.
2	Preglow	During this state, the glow sensor determines the glow time and power is applied to the glow plugs. This cycle starts immediately after the control box power switch is placed in the ON position.
3	Prestart	Post preglow state. The ECM is waiting for the starting cycle.
4	Start	Power is being applied to starter.
5	Post glow	5 second post glow after engine start.
6	Run	Standard running mode.
7	Fault	All functions stopped. Waiting repeat of power up cycle. Faults that produce engine shut down: • low oil pressure • over temperature • tip over • over voltage

2.25 ECM Monitoring of Solenoids

The ECM monitors the wiring to, and condition of, the fuel solenoid and the wiring to, and condition of, the starter solenoid.

If the wire **(a)** to the fuel solenoid is disconnected or the fuel solenoid is faulty, the following results occur.

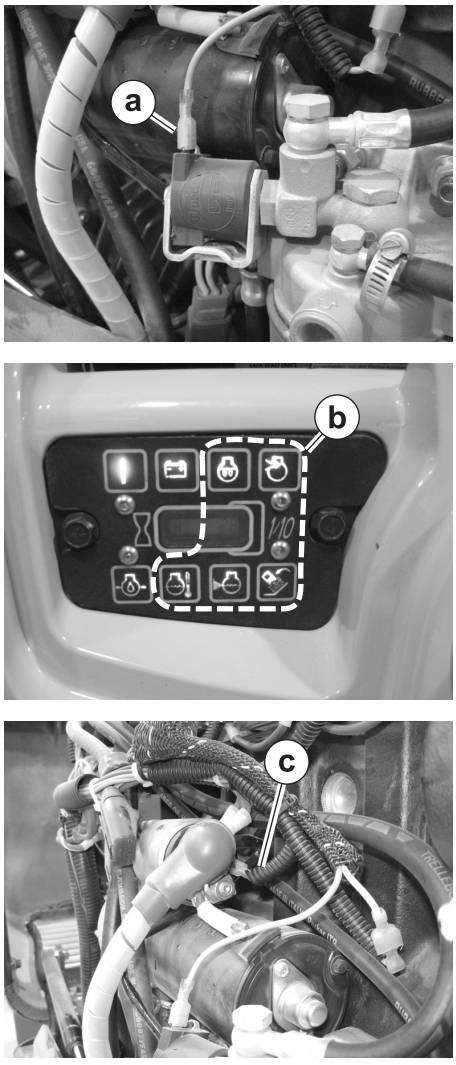
- The control panel indicators **(b)** will flash immediately after the transmitter is turned on.
- The red LEDs of the light ring will illuminate solid red.
- The engine will not crank.

Reconnect the wire or replace the fuel solenoid to enable the machine to start.

If the wire **(c)** to the starter solenoid is disconnected or the starter solenoid is faulty, the following results occur.

- The control panel indicators **(b)** will flash immediately after the starter pushbutton is pressed.
- The red LEDs of the light ring will illuminate solid red.
- The engine will not crank.

Reconnect the wire or replace the starter solenoid to enable the machine to start.



wc_gr006333

2.26 Connecting the Diagnostic Tool

Use the diagnostic tool to access the diagnostic capabilities of the Engine Control Module (ECM).

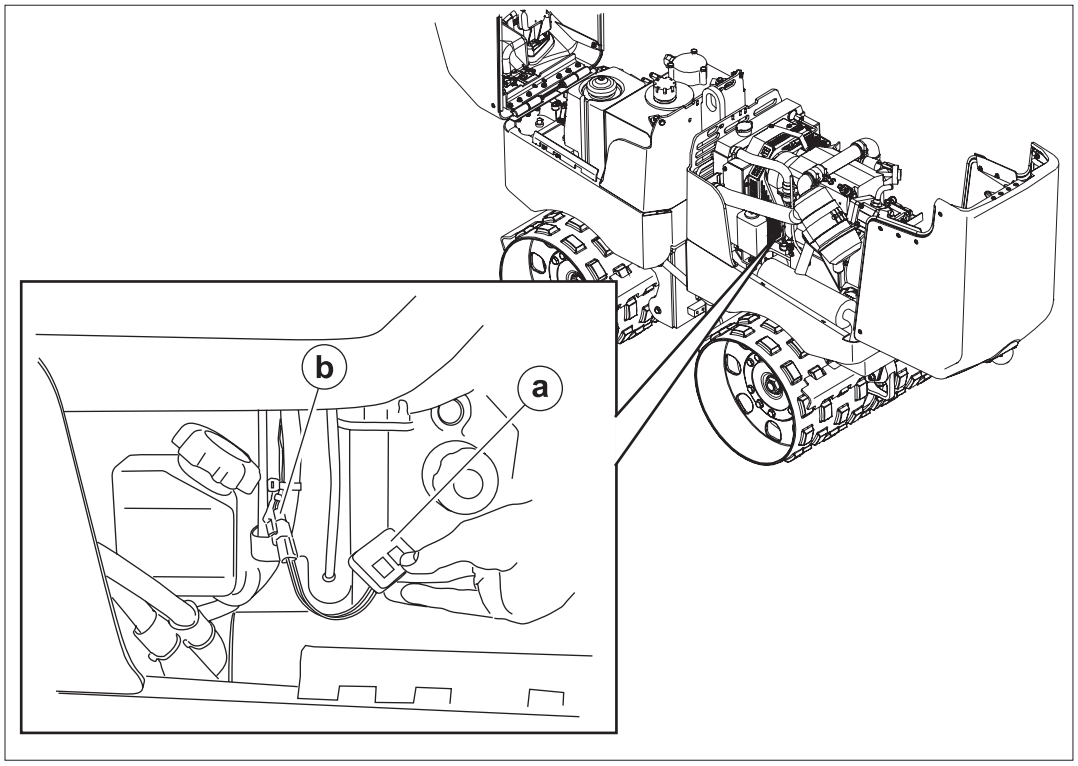
To connect the diagnostic tool:

2.26.1 Shut down the machine.

2.26.2 Open the engine compartment.

2.26.3 Remove the cap from the connector **(b)** on the wiring harness.

2.26.4 Plug the diagnostic tool **(a)** into the wiring harness.



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2.27 ECM Tip-Over Modes

The ECM will allow one of two things to occur after a tip-over:

1) Allow the engine to be started after the machine has been righted. This mode is known as the “FLASH LED” mode and is the default mode the machine is in from the factory. When in this mode, the tip-over light flashes after a tip-over incident until the ECM diagnostic data is reset. See section *Resetting the ECM Diagnostic Data and the Tip-Over Light*.

2) Lock out the starting function until the machine has been righted and the ECM diagnostic data has been reset. This mode is designated the “LOCK OUT START” mode. When in this mode, the tip-over light will stay on solid after a tip-over incident until the ECM diagnostic data is reset. See section *Resetting the ECM Diagnostic Data and the Tip-Over Light*.

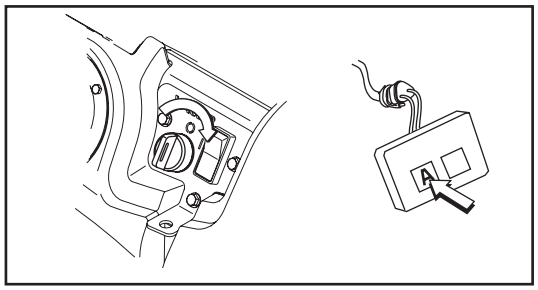
2.28 Programming the ECM Tip-Over Mode

To set the ECM tip-over mode:

2.28.1 Connect the diagnostic tool. See section *Connecting the Diagnostic Tool*.

2.28.2 Do one of the following:

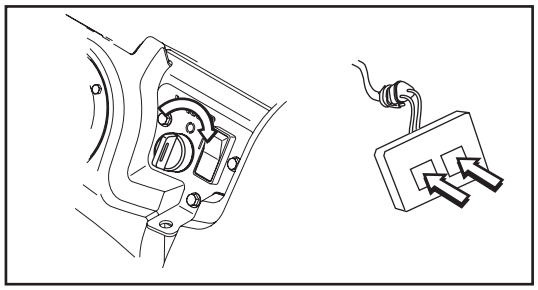
- Press and hold button “A” of the diagnostic tool and turn the key to ON. This will set the ECM to the FLASH LED mode.



wc_gr005052

or

- Press and hold both of the buttons of the diagnostic tool and turn the key ON. This will set the ECM to the LOCK OUT START mode.



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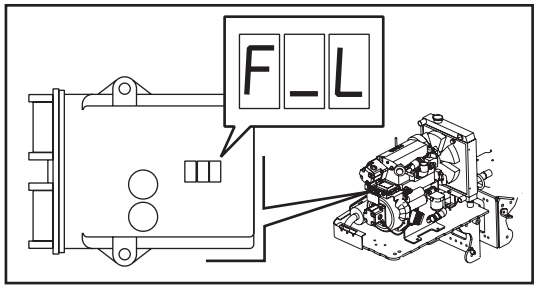
2.28.3 Check the mode setting by observing the LED display of the ECM during the 5 seconds immediately after turning the key ON.

“L_O” = LOCK OUT START

“F_L” = FLASH LED



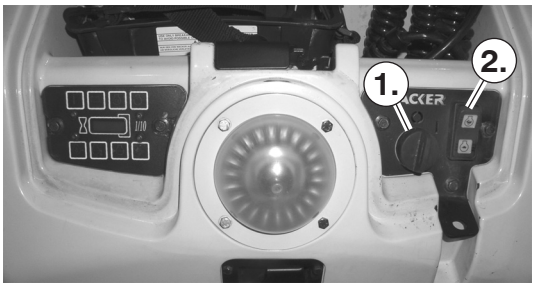
wc_gr005050

2.29 Entering the ECM Diagnostic Mode

Follow the procedure below to enter the ECM diagnostic mode.

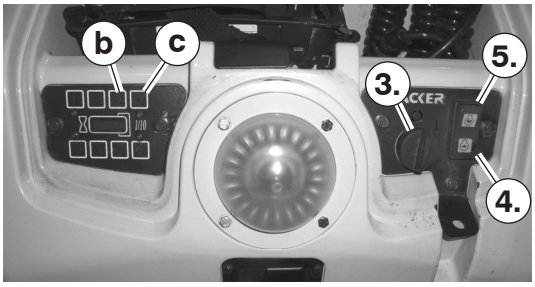
2.29.1 Turn the key OFF (1.).

2.29.2 Place the throttle switch in the HIGH position (2).



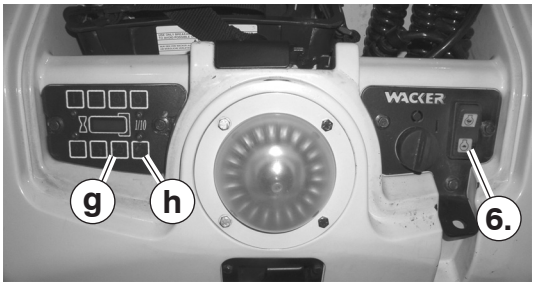
wc_gr005048

2.29.3 Turn the key ON (3.) and within 2 seconds, place the throttle switch to the LOW position (4.) and then back to the HIGH position (5.). Lights **(b)** and **(c)** will illuminate.



wc_gr005045

2.29.4 Watch lights **(g)** and **(h)**; when they illuminate, place the throttle switch in the LOW position (6.).



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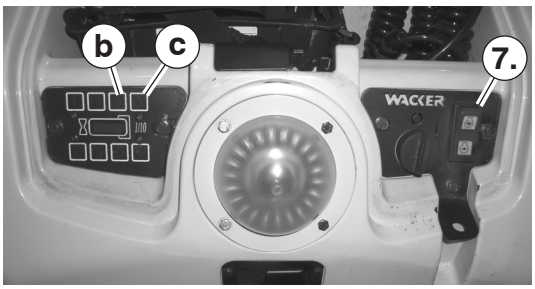
2.29.5 Watch lights **(b)** and **(c)**; when they illuminate, place the throttle in the HIGH position (7.).

The lights of the control panel will illuminate randomly to indicate the sequence was properly completed.



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2.29.6 The ECM is now ready to be accessed by using the diagnostic tool. See section *Viewing the ECM Fault and Error Codes* and section *Resetting the ECM Diagnostic Data and the Tip-Over Light*.

2.30 ECM Fault and Error Codes

Background
Machine fault and error codes are viewable on the three LED displays of the ECM. The tip over fault is always viewable after engine start. To view all other fault and error codes, the diagnostic mode of the ECM must be entered and the diagnostic tool must be connected.

Fault codes
Each fault code consists of two sets of digits. The first set includes the letter “F” and represents the type of fault. The second set represents the number of times the fault has occurred or the time elapsed since the ECM has been cleared. **Note:** *All fault codes are displayed, even if there has not been a fault*. The fault codes scroll across the three LED displays automatically.

Fault code examples:

- “F00-02” — the roller has tipped over two times since the codes were cleared.
- “F06-0024” — the starter has been engaged 24 times since the codes were cleared
- “F07-120.0 H” — the roller has accumulated 120 hours since the codes were cleared.

Error codes
Each error code consists of one set of digits. Each includes the letter “E” and represents the type of error. **Note:** *Only codes for those errors that have occurred are displayed.* The error codes are displayed as fixed characters—they do not scroll across the LED displays automatically.

Error code example:

- “E07” — the oil pressure sensor is or has been unplugged.

Viewing
Follow the procedure below to view the fault and error codes.

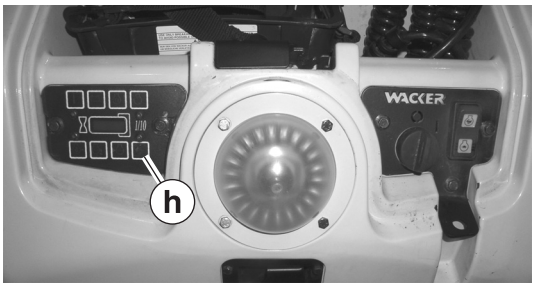
1. Connect the diagnostic tool. See section *Connecting the Diagnostic Tool.*
2. Enter the diagnostic mode of the ECM. See section *Entering the ECM Diagnostic Mode*.
3. Use the buttons on the diagnostic tool to cycle through the codes. Pressing the “A” button of the diagnostic tool advances through the codes. Pressing the “B” button cycles through the codes in the opposite order.
4. The fault codes (F00 to F07) are displayed first followed by the error codes (E00 to E39). Pressing the buttons of the diagnostic tool cycles through the error codes and back to the fault codes.

Code	Description
F00	Number of tip faults
F01	Number of over heat faults
F02	Number of low oil pressure faults
F03	Number of eeprom faults (ECM memory fault)
F04	Number of over voltage faults
F05	Run time under restricted air flow
F06	Number of starts
F07	Engine run time

Code	Description
E00	Possible bad glow time sensor
E01	Possible bad temperature sensor
E02	Possible bad air flow sensor
E03	Possible bad oil pressure sensor
E04	Possible bad tip sensor
E05	Temperature sensor was unplugged
E06	Air restriction sensor was unplugged
E07	Oil pressure sensor was unplugged
E08	Open starter solenoid
E09	Open fuel solenoid
E10	Open throttle hold solenoid
E11	Open throttle pull relay
E12	Open glow plug relay
E13	Open RX power relay
E14	Open LED ring output
E15	Low battery
E16	Starter solenoid
E17	Shorted fuel solenoid
E18	Shorted throttle hold solenoid
E19	Shorted throttle pull relay
E20	Shorted glow plug relay coil
E21	Shorted RX power relay coil
E22	Shorted LED ring output
E23	High oil pressure on power up
E24	Starter solenoid over current
E25	Fuel solenoid over current
E26	Throttle hold solenoid over current
E27	Throttle pull relay coil over current
E28	Glow plug relay coil over current
E29	RX power relay coil over current
E30	LED ring output over current
E31	Open
E32	High starter solenoid current
E33	High fuel solenoid current
E34	High throttle hold solenoid current
E35	High throttle pull relay coil current
E36	High glow plug relay coil current
E37	High RX power relay coil current
E38	High LED ring output current
E39	Open

2.31 Resetting the ECM Diagnostic Data and the Tip-Over Light

To reset the ECM diagnostic data, and turn off the tip-over light **(h)**, carry out the following procedure.



wc_gr005057

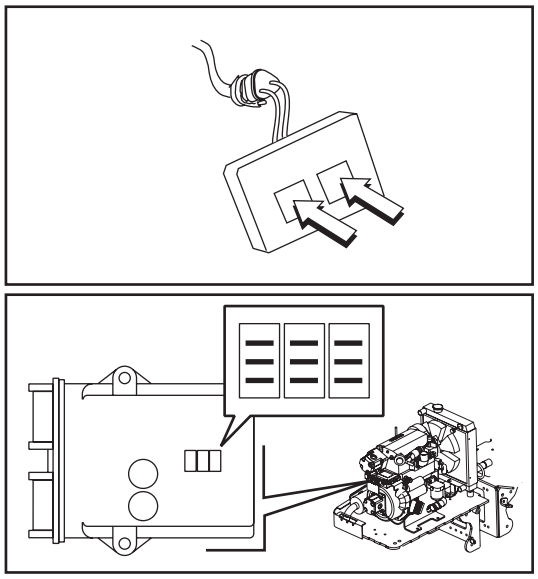
2.31.1 Connect the diagnostic tool.
See section *Connecting the Diagnostic Tool*.

2.31.2 Enter the diagnostic mode of the ECM. See section *Entering the ECM Diagnostic Mode*.

Note: *Before proceeding, it is important to realize all stored data will be erased.*

2.31.3 While in the diagnostic mode, press and hold both buttons of the diagnostic tool for approximately 5 seconds and observe the ECM LED displays.

The ECM LED displays will change to nine dashes once the ECM has been reset.


wc_gr005049

2.32 Calibrating the Joysticks

To determine if calibration is needed:

2.32.1 Press and release the red power button. If the joysticks are out of calibration, the red power indicator light will turn on and remain lit, and the green function LED will flash.

2.32.2 If the joysticks are in calibration, the red power indicator will turn on and remain lit, but the green function LED will not illuminate.

To calibrate the joysticks:

2.32.3 Press and hold the red power button for approximately 3 seconds until the green function LED turns on and remains lit. Release the red power button.

2.32.4 Press and hold the red power button again for approximately 3 seconds until the green function LED flashes. Release the red power button.

2.32.5 Move the forward/reverse joystick all the way forward and hold it in place. While holding the joystick, press and release the red power button. The green function LED will flash.

2.32.6 Move the forward/reverse joystick all the way backward and hold it in place. While holding the joystick, press and release the red power button. The green function LED will flash.

2.32.7 Move the left/right joystick all the way to the left and hold it in place. While holding the joystick, press and release the red power button. The green function LED will flash.

2.32.8 Move the left/right joystick all the way to the right and hold it in place. While holding the joystick, press and release the red power button. The green function LED will flash.

To exit the calibration mode:

All four joystick positions must be calibrated in order to exit the calibration mode. The transmitter will return to its normal operating mode after the joysticks have been calibrated.

Note**:** *If you are unable to exit the calibration mode, remove and re-install the transmitter battery. This will reset the system.*

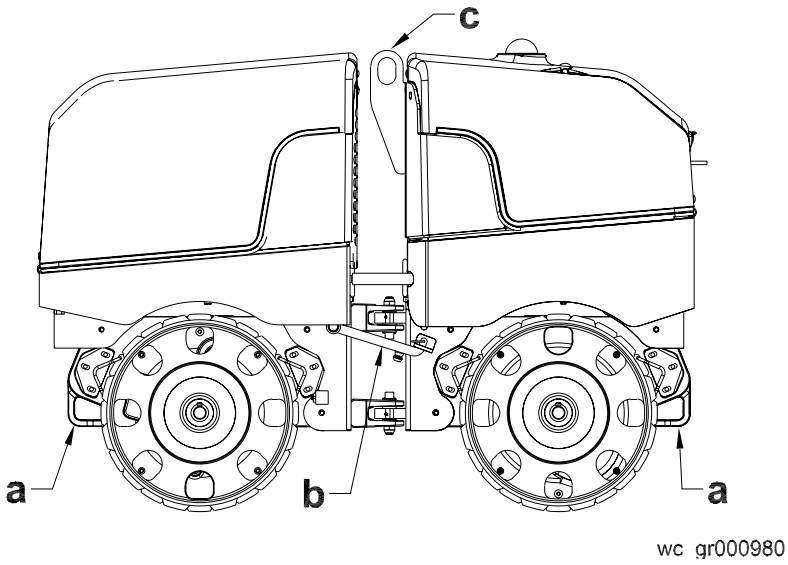
3 Maintenance

3.1 Transporting Machine

See Graphic: wc_gr000980

When transporting the machine, place blocks in front of and behind each drum and use the tie down lugs **(a)** provided to securely fasten the machine to the trailer.

Make sure that the joint locking bar **(b)** is engaged.



3.2 Lifting Machine

See Graphic: wc_gr000980

Lock front and rear machine halves together using the joint locking bar **(b)** at the articulated steering joint on the machine. Use a lifting device with sufficient weight-bearing capacity. Lift machine from lifting eye **(c)**.

ALWAYS lock the articulated steering joint before lifting the machine.

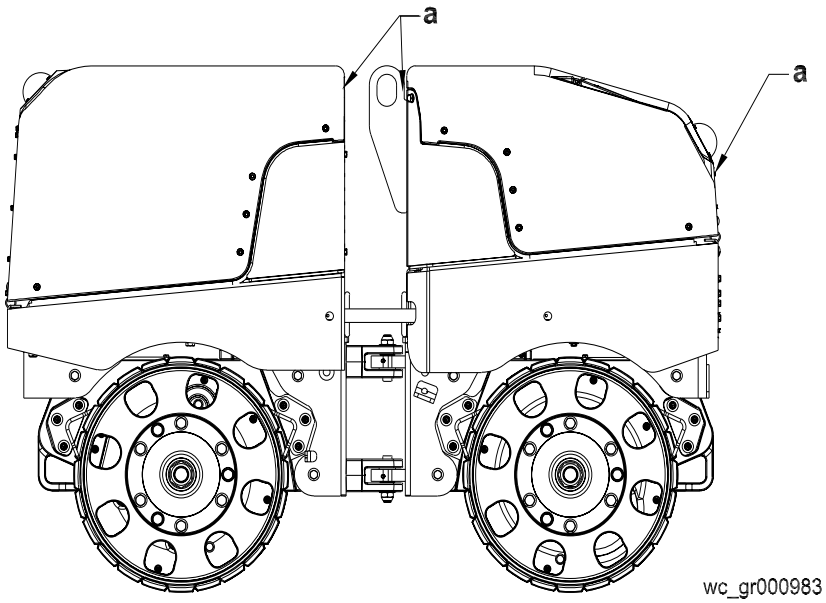
3.3 Job Site Storage

See Graphic: wc_gr000983

Never allow the roller to sit overnight in a ditch, trench or other low-lying area which might fill with water during a heavy rain. Park the roller on a flat level surface, out of the way of traffic patterns and congestion. If the roller must be parked on an incline, chock the drums to prevent any chance of movement.

If leaving the roller on the job site, remember to remove the key and lock the control panel cover and engine hood to prevent tampering. Both the front and rear hoods and access cover are equipped with a locking ring **(a)** for use with a padlock for this purpose.

If desired, the SmartControl™ can be removed from the roller and stored separately.



3.4 Storage

If storing unit longer than 30 days, the following steps are recommended:

3.4.1 Change the engine oil.

3.4.2 Clean or change air cleaner elements.

3.4.3 Drain any water that may have collected at the bottom of the fuel tank. Replace the fuel filter. Refill the tank with fresh No. 2 diesel fuel.

Note: *Diesel fuel is subject to bacterial growth which can contaminate fuel lines. Allowing the tank to sit dry for a long period of time helps promote such growth. The addition of a biocide to the fuel is recommended to inhibit bacterial growth and protect the engine fuel system.*

3.4.4 Store the unit indoors in a clean dry area. If the unit must be stored outdoors, cover it.

3.5 New Machines

Perform initial oil and filter changes as listed below. Follow *Periodic Maintenance Schedules* thereafter.

3.5.1 Change engine oil and replace oil filter after first 50 hours.

3.5.2 Replace hydraulic return line filter after first month or 100 hours.

3.6 Periodic Maintenance Schedules

Roller	Daily before starting	Every 100 hrs.	Every 500 hrs.	Once A Year	Every 2 Years
Check hydraulic oil. Fill to correct level.	•				
Clean control box / transmitter.	•				
Grease articulated joint.		•			
Grease steering cylinder.		•			
Grease hood hinges.		•			
Change oil in drive gearcase.			•		
Change hydraulic system return line filter.				•	
Change hydraulic fluid.				•	
Change exciter oil.					•

The chart below lists basic engine maintenance. Refer to the engine manufacturer's Operation Manual for additional information on engine maintenance.

Lombardini Engine	Daily before starting	Every 100 hrs.	Every 125 hrs.	Every 250 hrs.	Every 300 hrs.	Every 500 hrs.
Check engine oil. Fill to correct level.	■					
Replace air filter if indicator light is on.	■					
Check condition and tension on fan belt.	■					
Clean engine head and cylinder fins.		■				
Change oil in engine crankcase.			■			
Replace engine oil filter.				■		
Check and adjust fan belt.				■		
Replace fuel filter cartridge.				■		
Clean injectors and check injector pressure.					■	
Replace fan belt.						■
Check valve clearance.						■

3.7 Hydraulic Oil Requirements

Wacker Neuson recommends the use of a good petroleum-based, anti-wear hydraulic oil in the hydraulic system of this equipment. Good anti-wear hydraulic oils contain special additives to reduce oxidation, prevent foaming, and provide for good water separation.

When selecting hydraulic oil for your machine, be sure to specify anti-wear properties. Most hydraulic oil suppliers will provide assistance in finding the correct hydraulic oil for your machine.

Avoid mixing different brands and grades of hydraulic oils.

Most hydraulic oils are available in different viscosities.

The SAE number for an oil is used strictly to identify viscosity—it **does not** indicate the type of oil (engine, hydraulic, gear, etc.).

When selecting a hydraulic oil be sure it matches the specified SAE viscosity rating and is intended to be used as a hydraulic oil. See section *Technical Data—Lubrication.*

3.8 Hydraulic Oil Level

See Graphic: wc_gr000979

A hydraulic oil level sight gauge **(c)** is located on the hydraulic tank inside the rear section of the machine.

Check that the oil level is within 25 mm (one inch) of the top of the sight gauge. Add oil as required through the filter housing on top of hydraulic tank.

If hydraulic oil continually needs to be added, inspect hoses and connections for possible leaks. Repair hydraulic leaks immediately to prevent damage to hydraulic components.

3.9 Changing Hydraulic Oil & Filter

See Graphic: wc_gr000979

Note: *In the interests of environmental protection, place plastic sheeting and a container under the machine to collect the liquid which drains off. Dispose of this liquid properly.*

To change hydraulic oil:

3.9.1 Remove drain plug from bottom of frame and allow hydraulic fluid to drain.

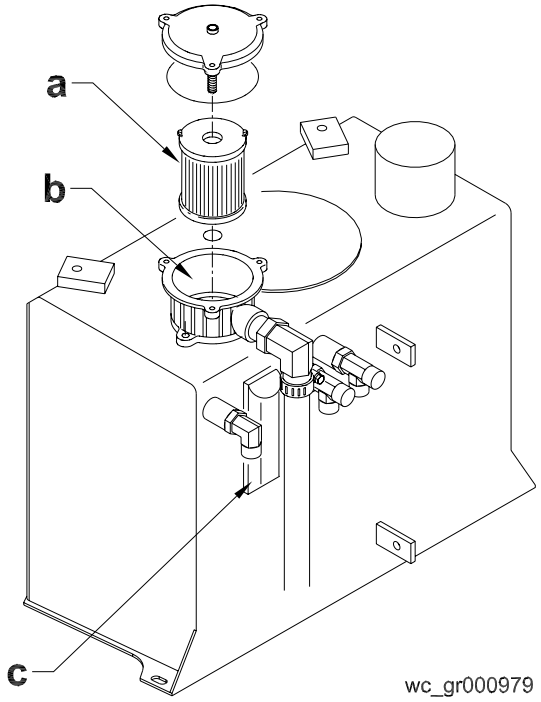
3.9.2 Clean filter housing cover. Remove cover from the filter housing and remove the filter element **(a)**.

CAUTION Be extremely careful to avoid dropping anything into the filter housing while cover is off.

3.9.3 Install drain plug.

3.9.4 Fill hydraulic tank through filter housing **(b)** using clean hydraulic fluid.

3.9.5 Install new filter element **(a)** as shown in illustration. Replace housing cover.

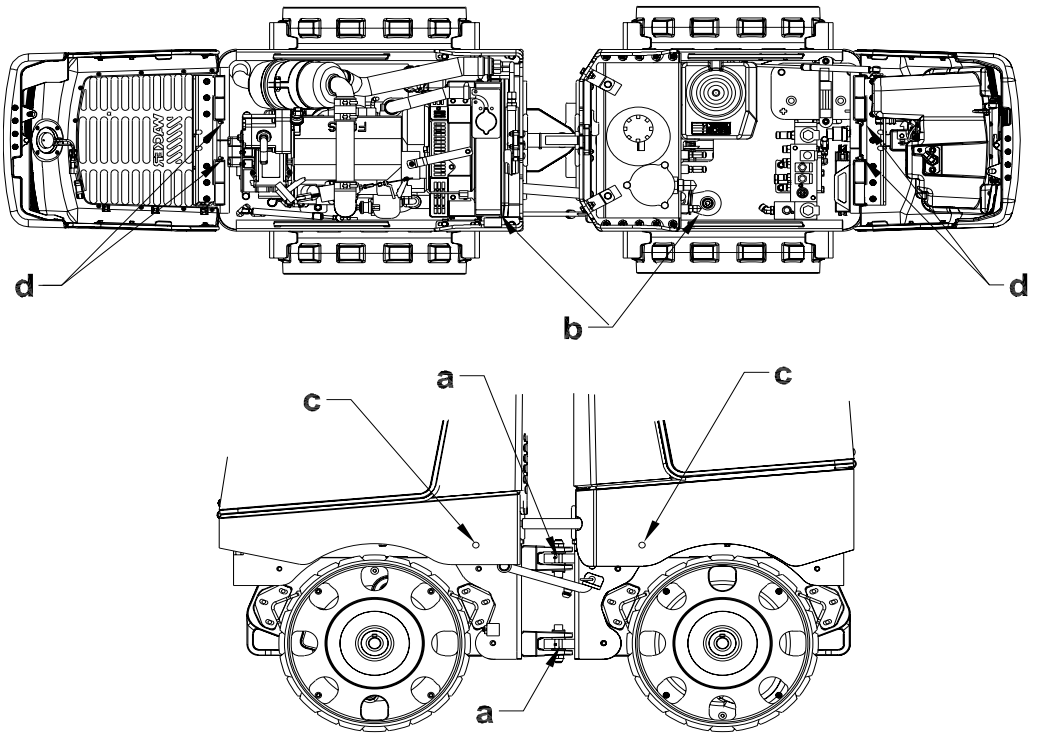


3.10 Articulated Joint, Steering Cylinder, and Hood Hinges

See Graphic: wc_gr001665

Lubricate top and bottom bearing blocks **(a)**, cylinder knuckles **(b),** and hood hinges **(d)** every 100 hours using a hand-held grease gun. Cylinder knuckles can be accessed through holes on side of machine **(c)**.

Use Shell Alvania RL2 or an equivalent No. 2 general purpose grease.



wc_gr001665

3.11 Cleaning SmartControl™ Transmitter

The transmitter and switches are completely sealed to keep dust and moisture out; however, contact with water should be kept to a minimum. Even a small amount of moisture can cause connections and contacts to corrode. Avoid immersing transmitter in water and do not clean using a pressure wash.

To clean the transmitter:

3.11.1 Wash off the transmitter using a damp cloth. Allow it to air dry.

3.11.2 To remove dirt and dust trapped around switches, use low-pressure compressed air.

3.12 Drive Gearcase

See Graphic: wc_gr000479

CAUTION

Any disassembly of the drive gearcase should be done on the opposite side of machine from that shown in graphic wc_gr000479.

Change the oil in the drive gearcase once a year or every 500 hours of operation.

Note: *In the interests of environmental protection, place plastic sheeting and a container under the machine to collect the liquid which drains off. Dispose of this liquid properly.*

To change the oil:

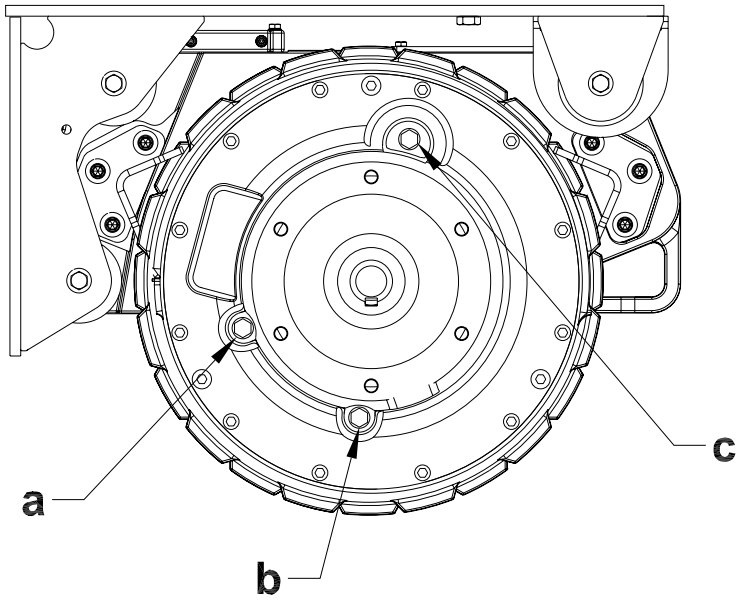
3.12.1 Remove drum from drivecase side of machine. On the front drum this will be on the left side, on the rear drum it is the right side.

3.12.2 Open fill plug **(c)** for venting and then remove drain plug **(b)** from bottom of drum assembly.

3.12.3 Install drain plug and remove level plug **(a)** from gearcase.

3.12.4 Add SAE 10W30 oil through fill plug opening until oil flows out of level plug opening, approximately 12.5 oz. (370 ml).

3.12.5 Replace plugs and install drum.



wc_gr000479

3.13 Exciter Lubrication

See Graphic: wc_gr000975

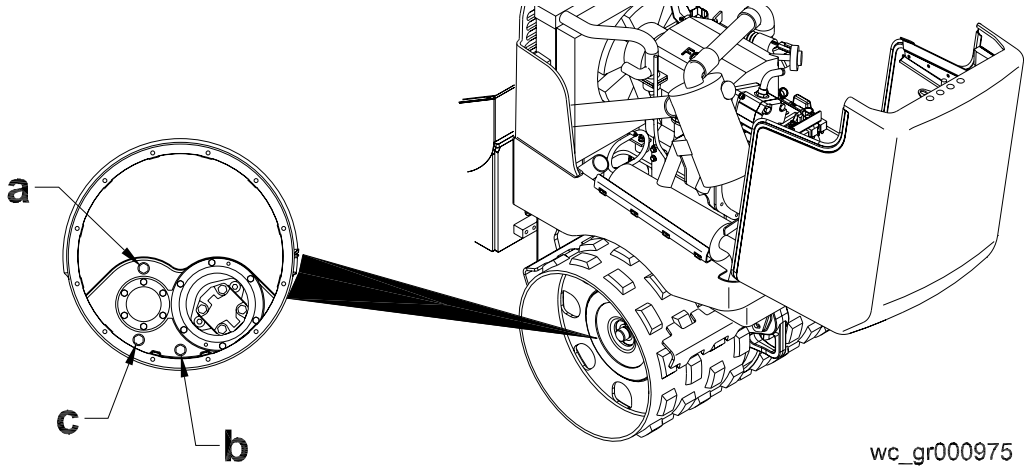
The exciter is a sealed unit and under normal conditions should not require any periodic maintenance; however, an oil change once every two years is recommended to ensure bearing life.

CAUTION

Exciter maintenance should be done on the right front drum and left rear drum only.

Changing the exciter oil requires special tools and should be performed by an experienced mechanic.

Ref.	Note
a	Oil fill plug
b	Oil drain plug
c	Oil level plug (Maintain oil at this level.)



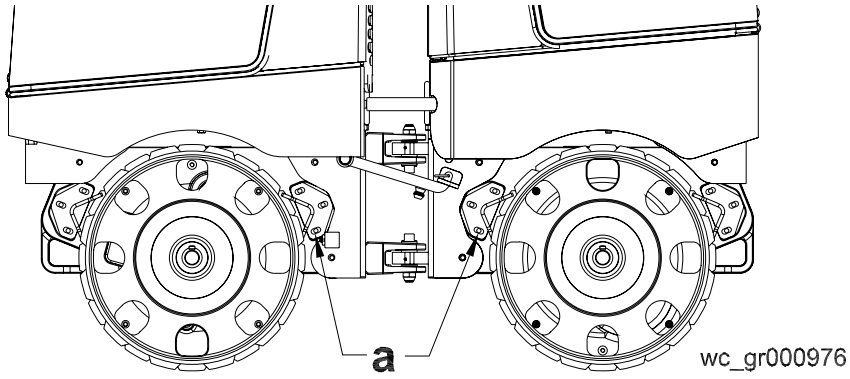
3.14 Scrapers

See Graphic: wc_gr000976

Scraper bars are provided on all four drums to prevent dirt from building up on the drum surfaces. These scrapers should be inspected and adjusted as required to remove as much dirt from the drums as possible.

To adjust a scraper:

Loosen the three screws **(a)** holding each scraper to the drum casting. Position the scraper 1/8–1/4" (3–6 mm) from the drum. Tighten screws and run machine to check that the scraper does not rub against the drum surface.

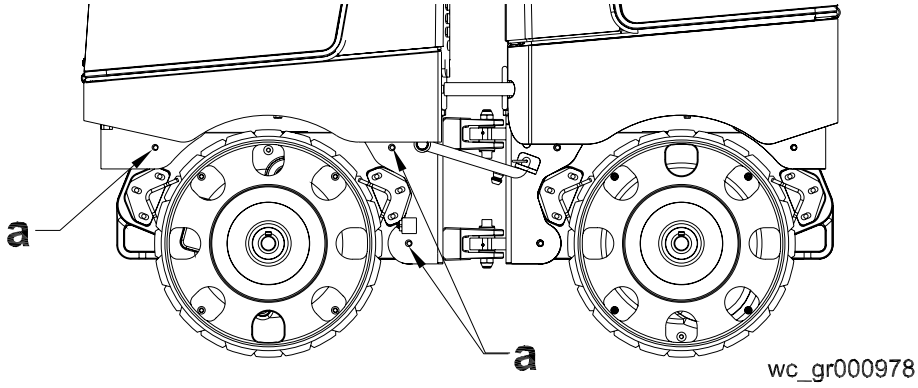


3.15 Shockmounts

See Graphic: wc_gr000978

Inspect the drum shockmounts **(a)** every 300 hours for cracking, splitting or tearing. Replace shockmounts as needed.

NOTICE: The shockmounts isolate the upper part of the machine from the heavy vibrations produced in the drums. Operating the machine with damaged shockmounts for an extended period of time may eventually damage other machine parts.



3.16 Changing Drums

See Graphic: wc_gr000981

The drums can be changed to adjust the working width of the machine. Drums are available in two standard sizes that provide a working width of 560 mm (22 in.) or 820 mm (32 in.).

To change drum:

3.16.1 Lock the articulated joint.

3.16.2 Remove scraper bars.

3.16.3 Use a screw jack, hoist or other type of lifting device to lift drums 25–50 mm (1–2 inches) off the ground. Lift only one end of the machine. Keep the other end in contact with the ground for stability.

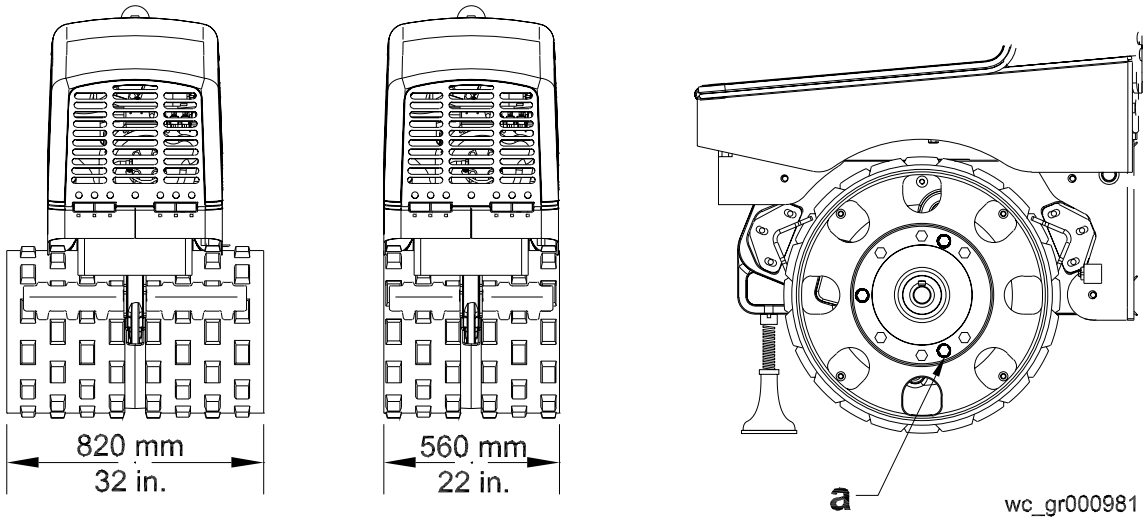
3.16.4 Use a 22 mm wrench and remove the six screws which hold the drum to the drum support.

3.16.5 Remove the three plugs **(a)** covering the pusher holes.

3.16.6 Insert three of the mounting screws into the pusher holes and thread them in evenly to push drum off.

3.16.7 Install new drum and fasten to support. Secure mounting screws with a medium-strength threadlocking adhesive.

3.16.8 Replace pusher hole plugs. Install the correct size scraper bars.



3.17 Battery

The battery supplied on this machine is rated at 12V with 800 Amp cold cranking capacity. It features a sealed, ventless design, and is constructed to resist vibration and provide longer service life.

DO NOT use automotive-type batteries on this machine. Automotive-type batteries are not designed to withstand the heavy vibration produced by this machine. The case on automotive-type batteries could fail, causing battery acid to leak.

Inspect battery periodically. Keep battery terminals clean and connections tight.

Maintain the battery at full charge to improve cold weather starting.

***NOTICE*:** Observe the following to prevent serious damage to the machine's electrical system:

- Never disconnect the battery with the machine running.
- Never attempt to run the machine without a battery.
- Never attempt to jump-start a machine.
- In the event that the machine has a dead battery, either replace the battery with a fully charged battery or charge the battery using an appropriate battery charger.

Explosion hazard. Batteries can emit explosive hydrogen gas. Keep all sparks and flames away from the battery. Do not short-circuit battery posts. Do not touch the machine frame or the negative terminal of the battery when working on the positive terminal.

3.18 Engine Oil System

See Graphic: wc_gr000971

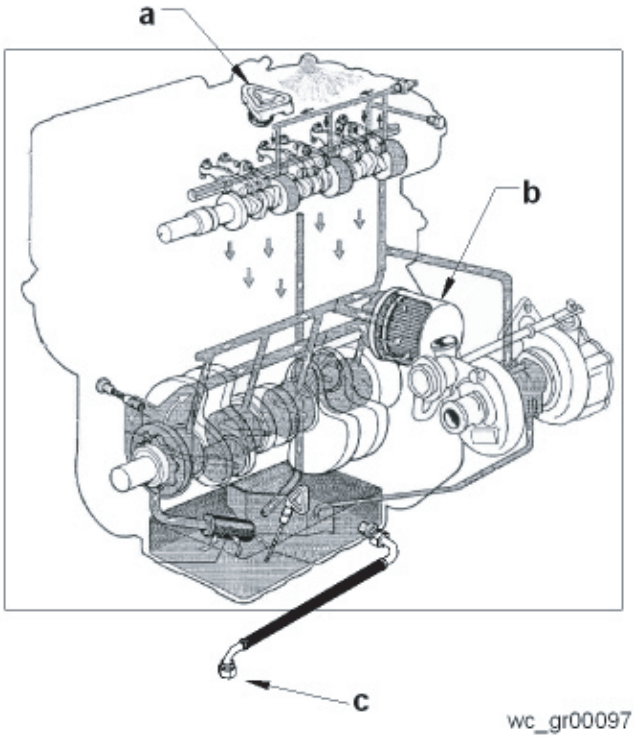
Check the engine oil level daily. Add oil as required.

To check oil:

Place the machine on a level surface, remove the dipstick and check that the oil level is at the top mark. Add oil through the oil filler cap **(a)** on top of engine, checking occasionally with dipstick; DO NOT overfill.

Suggested oil grades:

Use only diesel engine oil API service rating CD or equivalent.



wc_gr000971

3.19 Engine Oil and Filter

See Graphic: wc_gr000971

Change oil every 125 hours and oil filter **(b)** every 250 hours. On new machines, change oil after first 50 hours of operation. Drain oil while engine is still warm.

Note: *In the interests of environmental protection, place plastic sheeting and a container under the machine to collect the liquid which drains off. Dispose of this liquid properly.*

To change oil:

3.19.1 Remove oil filler cap **(a)** and oil drain plug **(c).** Drain oil into a suitable container.

3.19.2 Reinstall the drain plug and tighten.

3.19.3 Remove and replace oil filter **(b)**.

3.19.4 Remove oil filler cap **(a)** and fill engine crankcase with recommended oil. See *Technical Data* for oil quantity and type.

3.19.5 Install oil filler cap.

3.20 Air Cleaner

See Graphic: wc_gr005166

Replace both air filter elements when the air filter warning light illuminates. See Section *Control Panel Features*.

The air cleaner assembly contains a primary air filter element **(a)** and a secondary air filter element **(f)**.

To replace the air filter elements:

3.20.1 Remove the end cover **(b)**, then discard both filter elements.

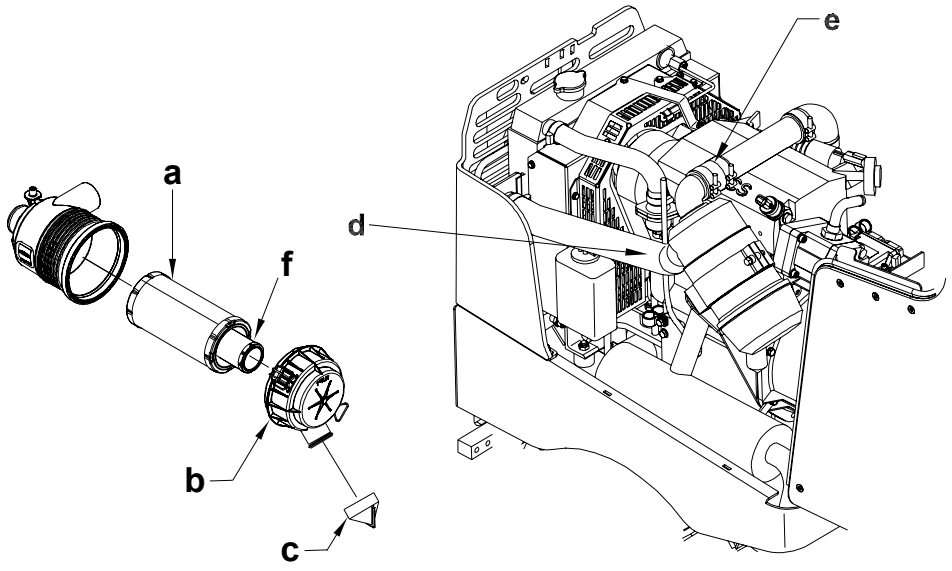
3.20.2 Insert new air filter elements, then:

3.20.3 Re-install the end cover, making sure that the dust cap **(c)** is clean and is pointing downward.

Periodically, make sure the inlet pipe **(d)** is free from obstructions.

NOTICE: *Check all connections and make sure they are snug. An air leak at the neck clamp or intake pipe can quickly lead to expensive engine repairs.*

- Make sure that the intake piping **(e)** is fully engaged over the neck of the filter to ensure a good seal.
- If the filter housing, neck, or inlet pipe are crushed or damaged, replace them immediately.



wc_gr005166

3.21 Engine Fuel Delivery System Maintenance

Maintenance to the engine fuel delivery system should be performed by an experienced mechanic familiar with diesel engines. For detailed maintenance procedures on the engine fuel system, refer to the engine manual supplied with the machine at the time of shipment.

3.22 Fuel Filter

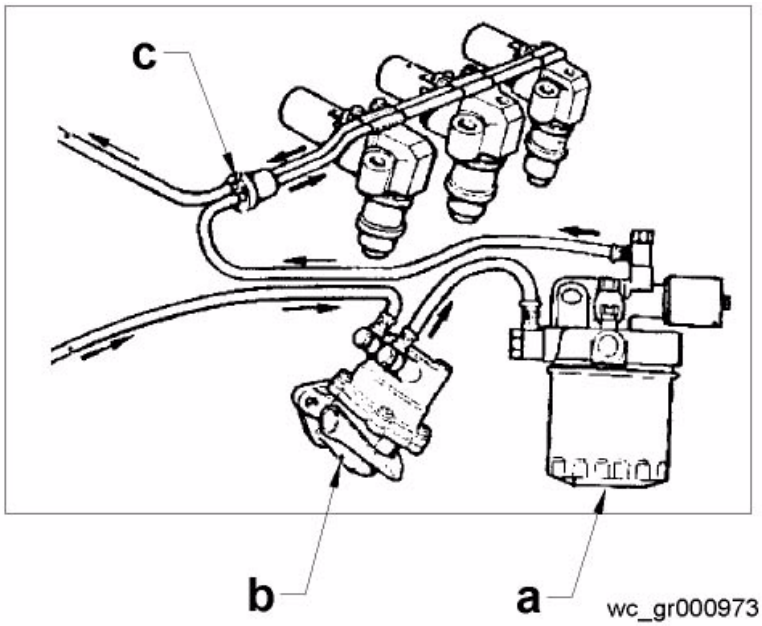
See Graphic: wc_gr000973

Change engine fuel filter every 300 hours of operation.

To change fuel filter:

3.22.1 Remove filter **(a)** from engine block.

3.22.2 Install new filter. If necessary, prime fuel lines as described in next section.



3.23 Priming the Fuel System

See Graphic: wc_gr000973

If the fuel tank has been run completely dry or drained for service, it will be necessary to manually prime the fuel system.

To prime the fuel system:

3.23.1 Turn both the key switch on the machine, and the on-off switch on control box, on. This will open the fuel valve.

3.23.2 Loosen the bleed screw on the fuel filter and pump the lever on the fuel pump **(b)** until fuel flows freely from the bleed screw. Tighten the bleed screw.

3.23.3 Repeat this procedure for the fuel line bleed screw **(c)**.

3.24 Engine Coolant

Check the coolant level of the radiator daily while the engine is cold The coolant level should be at the cold level mark (lower line) on the overflow bottle. Add coolant in a 50% water/50% glycol mixture if required.

WARNING

NEVER remove the radiator cap or drain plug while the engine is hot! Pressurized coolant can cause serious burns.

If it is necessary to open the radiator, only do so with the engine off, and only when coolant is cool enough to touch with bare hands. Slowly loosen cap to relieve pressure first, before removing it completely.

3.25 Valve Clearances

See Graphic: wc_gr002366

Check and adjust valve clearance every 500 hours. Set clearance with engine cold. Replace the valve/rocker arm cover gasket when checking the valve clearances. Refer to the engine manufacturer's service manual for detailed information.

To adjust valve clearances:

3.25.1 Remove valve/rocker arm cover

3.25.2 Bring each cylinder piston to top dead center on the compression stroke and set clearance.

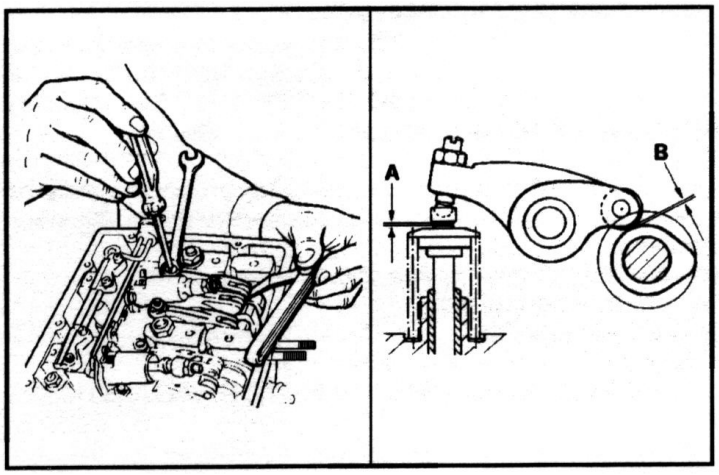
3.25.3 Valve clearance **(A)**: 0.20mm (0.008 in.).

Valve clearance **(B):** 0.15mm (0.006 in.).

3.25.4 Clean gasket material from cylinder head.

3.25.5 Place a small bead of RTV Silicone on cylinder head to secure ends of new gasket. Gently place gasket on cylinder head.

3.25.6 Replace valve/rocker arm cover. Torque bolts to 9 Nm (7 ft.lbs.).



wc_gr002366

3.26 Adjusting Engine Fan Belt

See Graphic: wc_gr002377

3.26.1 Remove the hydraulic oil cooler. See Section *Replacing Hydraulic Oil Cooler.*

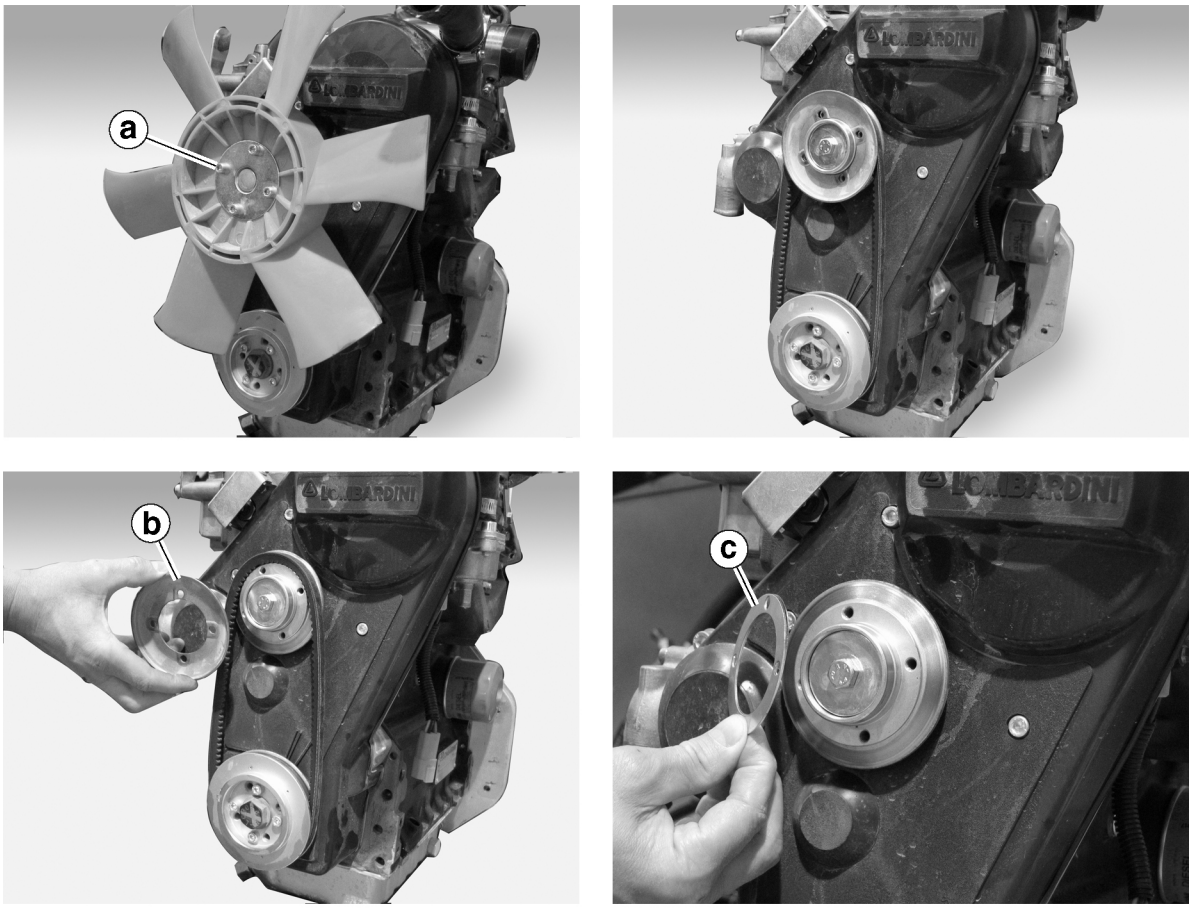
3.26.2 Remove radiator and shroud. See Section *Replacing Radiator and Shroud.*

3.26.3 Remove the four screws **(a)** securing the fan to the engine and remove the fan.

3.26.4 Remove the outer pulley plate **(b)**.

3.26.5 Insert the appropriate amount of shims **(c)** to give you the required tension on the belt. The fewer the number of shims, the tighter the belt will be. Approximately 6–12 mm (1/4–1/2 in.) deflection is recommended.

3.26.6 Place unused shims between outer pulley plate and fan when reinstalling the fan. Secure the fan to the engine with the four screws **(a)**.



wc_gr002377

3.27 Basic Troubleshooting

Problem / Symptom	Reason / Remedy
ENGINE DOES NOT START	• Fuel tank empty. Fill with No. 2 diesel fuel and prime fuel lines. • Wrong type of fuel. • Old fuel. Drain tank, change fuel filter and fill with fresh fuel. • Fuel system not primed. • Fuel filter restricted or plugged. Replace filter. • Battery connections loose or corroded. Battery dead. • Engine oil level too low. • Air cleaner element plugged. • Starter motor defective. • Starter button on control box or transmitter defective. • Fuel valve solenoids on engine inoperative. • Starter relay inoperative. • Electrical connections loose or broken. • Machine out of infrared signal range. • Transmitter and decoder channels are different.
ENGINE STOPS BY ITSELF	• Fuel tank empty. • Fuel filter plugged. • Fuel lines broken or loose. • Machine out of infra-red range. • Transmitter automatically powered-off due to inactivity.
NO VIBRATION	• Machine in high speed travel mode. • Defective switch or poor connection in control box or transmitter. • Solenoid on vibration valve inoperative. • Exciter assembly damaged. • Exciter motor coupling damaged. • Exciter motor damaged. • Exciter pump damaged. • Machine out of infra-red signal range.

Problem / Symptom	Reason / Remedy
NO TRAVEL or TRAVEL ONLY IN ONE DIRECTION	• Defective switch or poor connection in control box or transmitter. • Solenoid on travel valve inoperative. • Drive gearcase assembly damaged. • Loose, broken or corroded wire connections. • Drive motor damaged. • Drive pump damaged. • Machine out of infra-red signal range.
NO HIGH SPEED TRAVEL	• Defective switch or poor connection in control box or transmitter. • Solenoid on manifold inoperative. • Loose, broken or corroded wire connections. • Exciter pump worn or damaged. • Vibration is turned on. • Machine out of infra-red signal range.
NO STEERING	• Defective switch or poor connection in control box or transmitter. • Solenoid on steering valve inoperative. • Loose, broken or corroded wire connections. • Steering cylinder damaged. • Locking bar is engaged. • Machine out of infra-red signal range.

4 Technical Data

4.1 Engine

Engine Power Rating

Net power rating per ISO 3046/1 IFN. Actual power output may vary due to conditions of specific use.

Item No.:		RT 56SC-2: 0620294, 0620368	RT 82SC-2: 0620293, 0620367, 0620525, 0620526, 0620527, 0620528, 0620529, 0620530
Engine			
Engine Type		3-cylinder, 4-cycle, liquid-cooled, diesel engine	
Engine Make		Lombardini	
Engine Model		LDW 1003	
Rated Power	kW (Hp)	15.5 (20.8) @ 2600 rpm	
Alternator	Amp / V	23.8 / 16.5 @ 2600 rpm	
Engine Speed - full load	rpm	2600	
Engine Speed - idle	rpm	1300	
Valve Clearance (cold) intake: exhaust:	mm (in.)	 0.15 (0.006) 0.20 (0.008)	
Air Cleaner	type	Dry pleated paper elements	
Battery	V / CCA	12V - Sealed / 800	
Fuel	type	No. 2 Diesel	
Fuel Tank Capacity	l (gal.)	18.9 (6.3)	
Fuel Consumption	l (gal.)/hr.	5.64 (0.67)	
Radiator Capacity	l (gal.)	4.75 (1.25)	

4.2 Roller

Item No:		RT 56SC-2: 0620294, 0620368	RT 82SC-2: 0620293, 0620367, 0620525, 0620526, 0620527, 0620528, 0620529, 0620530
Roller			
Operating Weight	kg (lb.)	1391 (3068)	1473 (3247)
Area Capacity	m^2 (ft^2) / hr.	668 (7260)	972 (10560)
Inside Turning Radius	m (in.)	1.9 (73)	1.6 (63)
Travel Speed	m (ft.)/min.	41.66 (136.7) high 20 (65.6) low	
Vibration Frequency	Hz (vpm)	41.7 (2500)	
Gradeability with Vibration	%	50	
Gradeability w/o Vibration	%	45	

4.3 Lubrication

Item No:		RT 56SC-2: 0620294, 0620368	RT 82SC-2: 0620293, 0620367, 0620525, 0620526, 0620527, 0620528, 0620529, 0620530
Lubrication			
Engine Crankcase	type l (qt.)	SAE 15W40 Class CD rated 2.5 (2.5)	
Hydraulic System	type l (gal)	Premium grade, anti-wear hydraulic fluid SAE 10W30 40 (8)	
Exciter	type ml (oz.)	SAE 10W30 950 (32)	
Drum Drive Gearcase	type ml (oz.)	SAE 10W30 370 (12.5)	
Articulated Joint	type qty.	Shell Alvania RL2 Grease as required	
Steering Cylinder	type qty.	Shell Alvania RL2 Grease as required	
Radiator	type qty. %	Water / Glycol 50 / 50	

4.4 Sound and Vibration Measurements

Products are tested for sound pressure level in accordance with EN ISO 11204. Sound power level is tested in accordance with European Directive 2000/14/EC - Noise Emission in the Environment by Equipment for use outdoors.

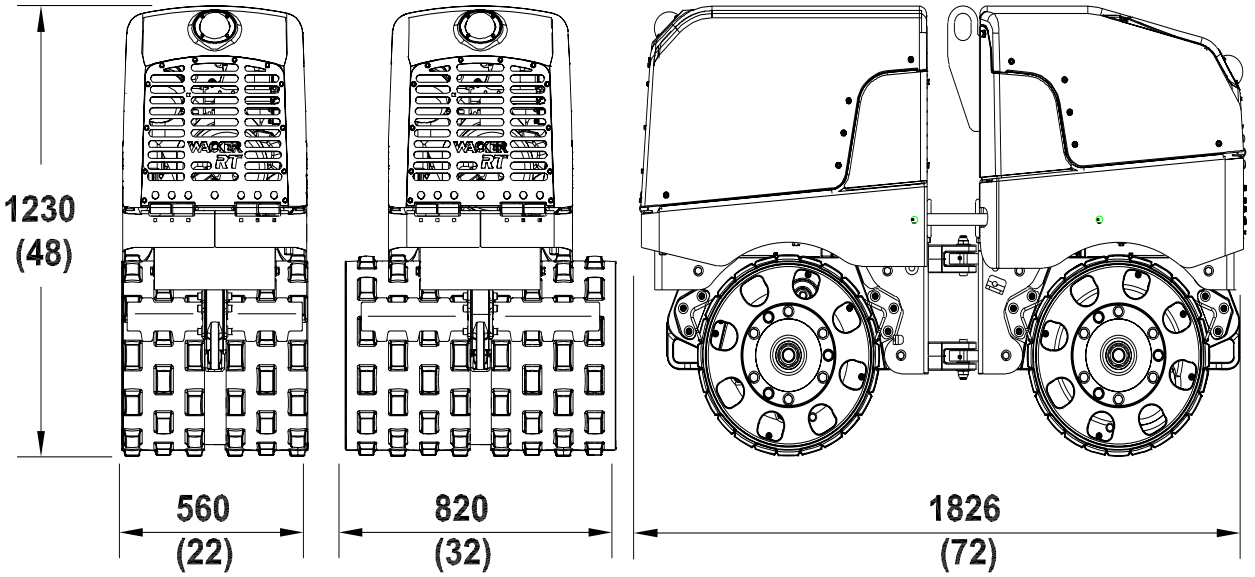
The sound pressure level at operator's location (L_{pA}) = 83 dB(A).

The guaranteed sound power level (L_{WA}) = 109 dB(A).

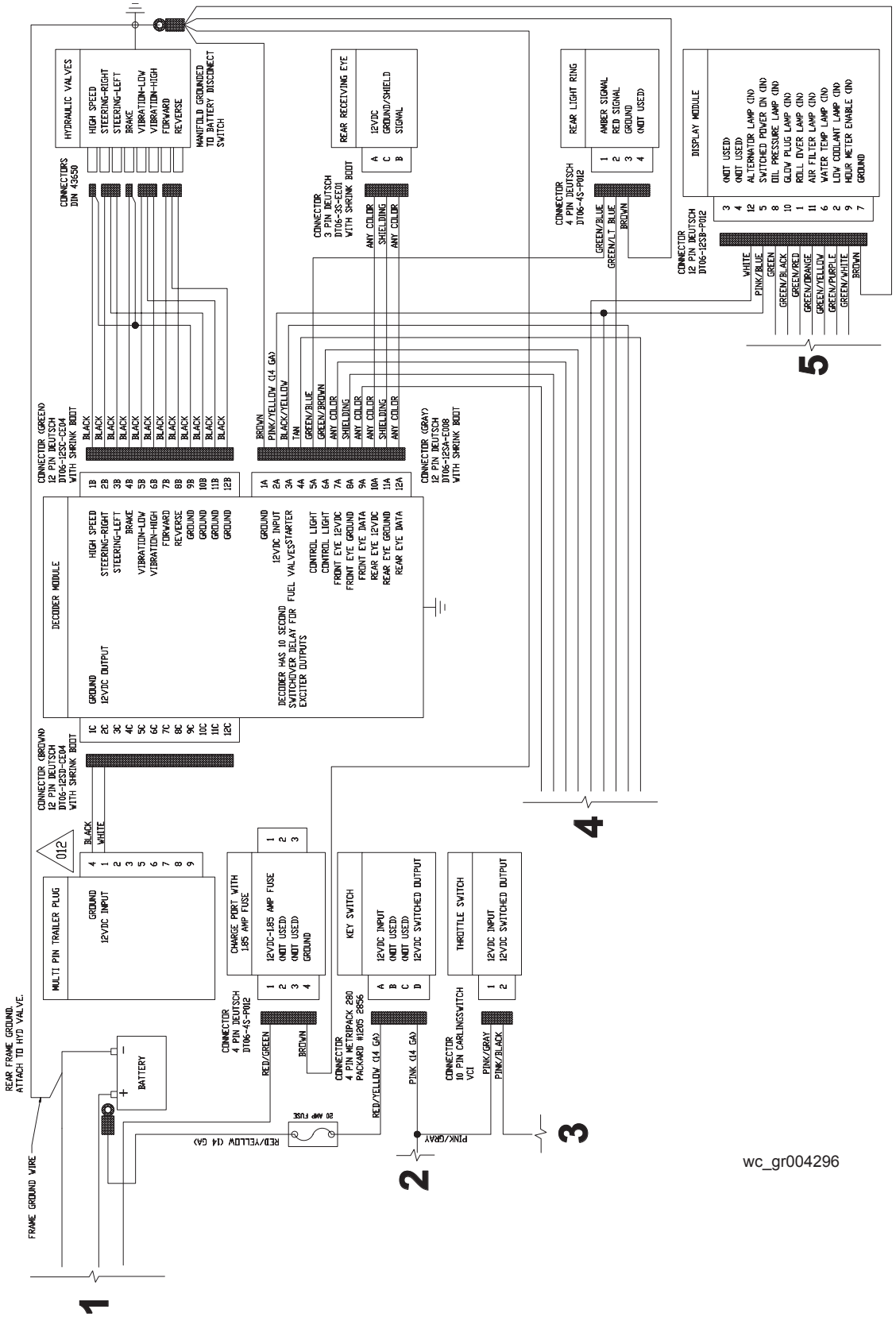
Because this machine is operated using remote control the operator is not exposed to vibration.

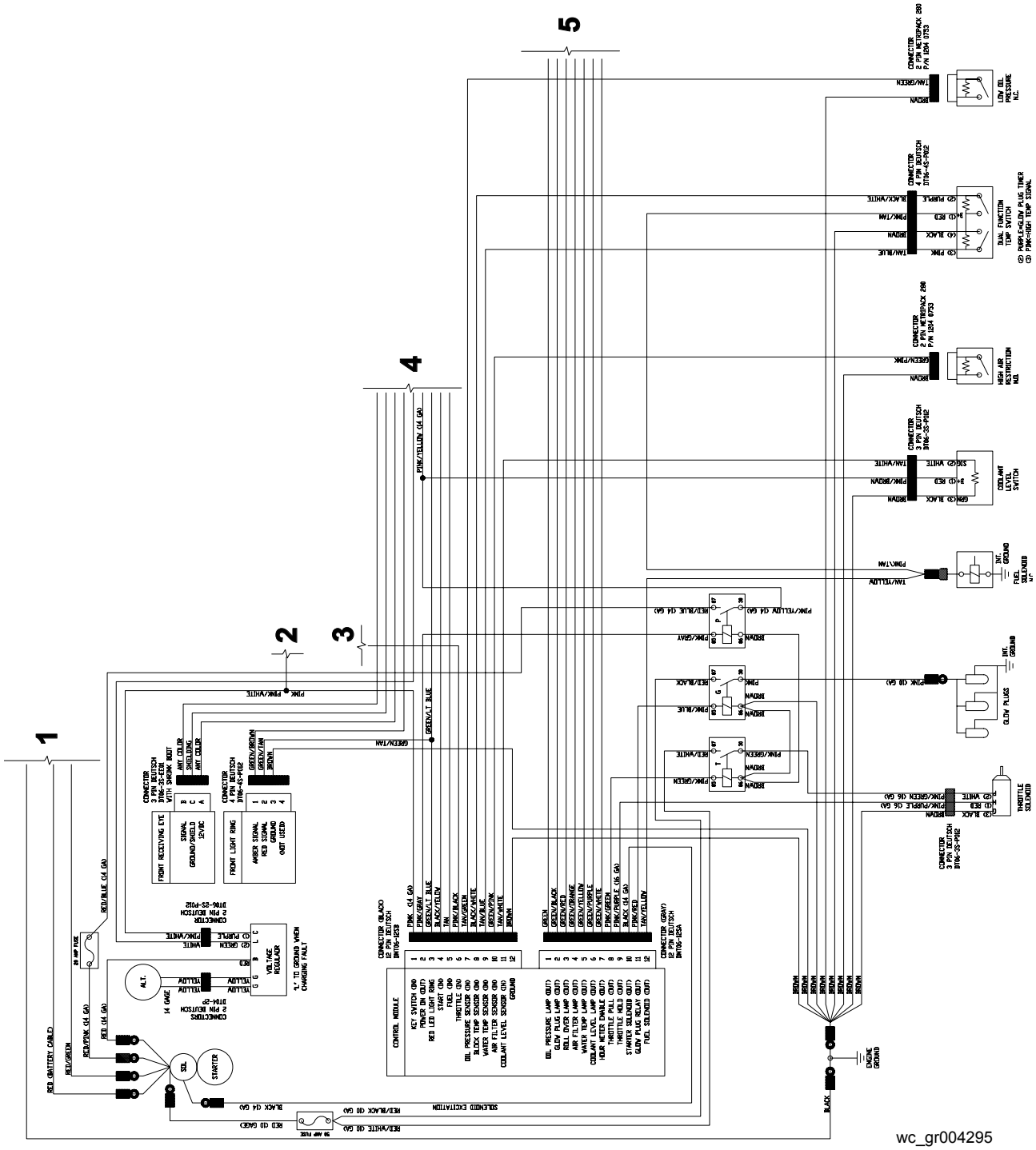
4.5 Dimensions

mm(in.)



4.6 Electrical Schematic

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4.7 Electrical Components

Below is an alphabetized listing of components shown on the electrical schematic. Use this as an aid when identifying electrical components.

English	
(Not used)	
“L” to ground when charging fault	
12VDC input	
12VDC input	
12VDC output	
12VDC switched output	
12VDC-1.85 Amp fuse	
20 Amp fuse	
50 Amp fuse	
5VDC input	
5VDC output	
Air filter lamp (in)	
Air filter lamp (out)	
Air filter sensor (in)	
ALT (alternator)	
Alternator lamp (in)	
Amber signal	
Any color	
Battery	
Battery cable	
Block temp sensor (in)	
Brake	
Brake (in 5V)	
Charge port with 1.85 Amp fuse	
Connector (black) 12-pin DEUTSCH	

English	
Connector (black) 4-pin DEUTSCH	
Connector (brown) 12-pin DEUTSCH with shrink boot	
Connector (gray) 12-pin DEUTSCH	
Connector (gray) 12-pin DEUTSCH with shrink boot	
Connector (gray) 2-pin DEUTSCH	
Connector (green) 12-pin DEUTSCH with shrink boot	
Connector 10-pin CARLINGSWITCH	
Connector 12-pin DEUTSCH	
Connector 2-pin DEUTSCH	
Connector 2-pin METRIPACK	
Connector 3-pin DEUTSCH	
Connector 3-pin DEUTSCH with shrink boot	
Connector 4-pin DEUTSCH	
Connector 4-pin METRIPACK	
Connectors DIN 43650	
Control light	
Control module	

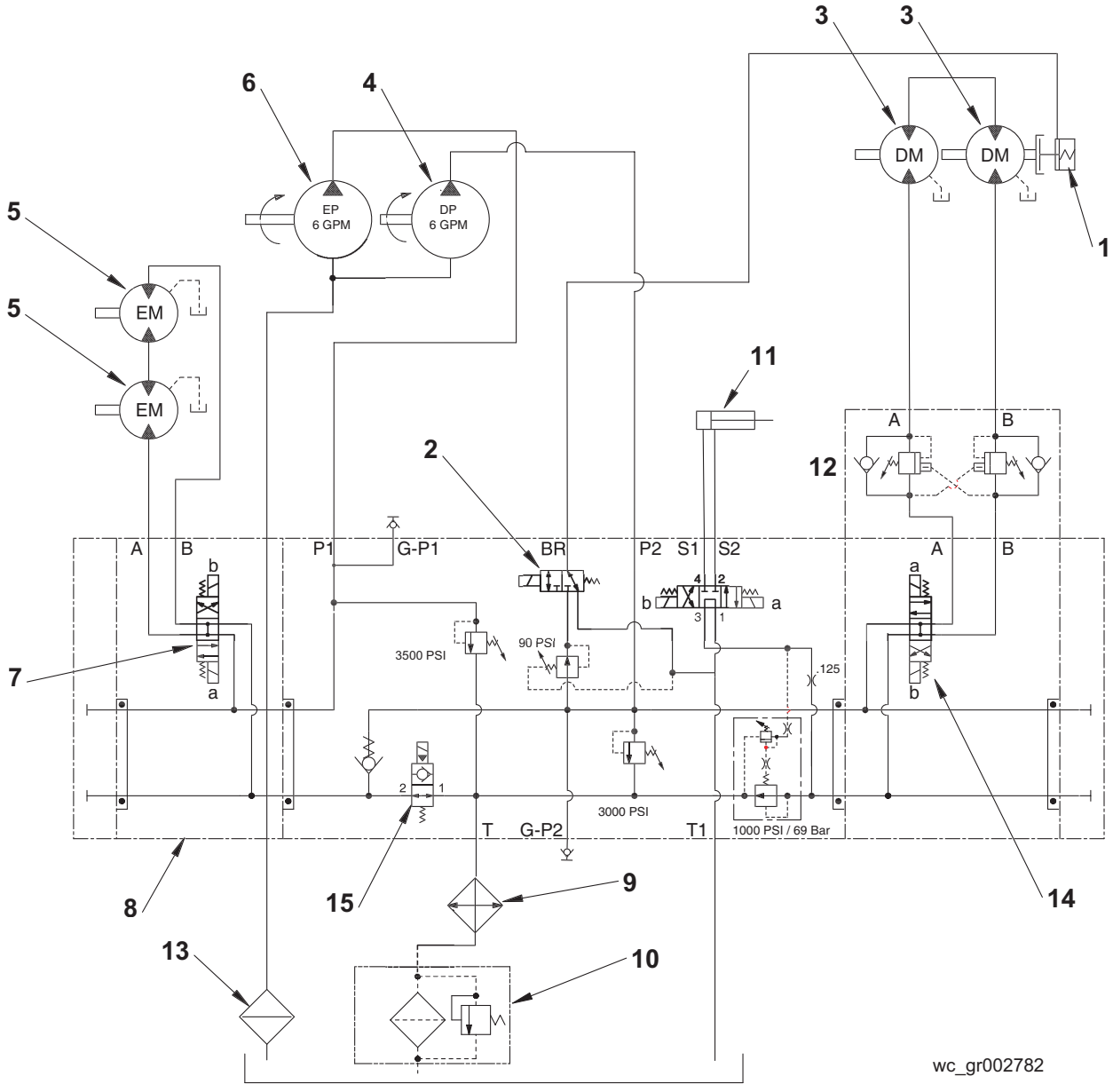
English	
Coolant level lamp (out)	
Coolant level sensor (in)	
Coolant level switch	
Decoder has 10 second switchover delay for exciter outputs	
Decoder module	
Display module	
Dual-function temp switch	
Engine ground	
Forward	
Forward (in 5V)	
Forward (out 5V)	
Frame ground wire	
Front eye 12VDC	
Front eye data	
Front eye ground	
Front light ring	
Front receiving eye	
Fuel (in)	
Fuel solenoid (NC)	
Fuel solenoid (out)	
Fuel valves	
Fuel/brake (out 5V)	
Glow plug lamp (in)	
Glow plug lamp (out)	
Glow plug relay (out)	
Glow plugs	
Ground	
Ground/shield	
High air restriction (NO)	

English	
High speed	
Hour meter enable (in)	
Hour meter enable (out)	
Hydraulic valves	
Int. (intermediate) ground	
Key switch	
Key switch (in)	
Low coolant lamp (in)	
Low oil pressure (NC)	
Manifold grounded to battery disconnect switch	
Multi-pin trailer plug	
Not used	
Oil pressure lamp (in)	
Oil pressure lamp (out)	
Oil pressure sensor (in)	
Pink=high temp signal	
Power on (out)	
Purple=glow plug timer	
Rear eye 12VDC	
Rear eye data	
Rear eye ground	
Rear frame ground. Attach to hydraulic valve	
Rear light ring	
Rear receiving eye	
Red LED light ring	
Red signal	
Reverse	
Reverse (in 5V)	

English	
Reverse (out 5V)	
Roll over lamp (in)	
Roll over lamp (out)	
Shielding	
Signal	
Signal	
SOL (solenoid)	
Solenoid excitation	
Start (in)	
Starter	
Starter (in 5V)	
Starter (out 5V)	
Starter solenoid (out)	
Steering-left	
Steering-right	
Steering-left (in 5V)	
Steering-left (out 5V)	
Steering-right (in 5V)	
Steering-right (out 5V)	
Switched power on (in)	
Throttle (in)	
Throttle hold (out)	
Throttle pull (out)	
Throttle solenoid	
Throttle switch	
Vibration-high	
Vibration-low	
Voltage regulator	
Water temp lamp (in)	

English	
Water temp lamp (out)	
Water temp sensor (in)	

4.8 Hydraulic Schematic



4.9 Hydraulic Components

Ref.	Description	Ref.	Description
1	Parking brake	9	Oil cooler
2	Brake valve	10	Return line filter
3	Drive motor	11	Steering cylinder
4	Drive pump	12	Steering valve
5	Exciter motor	13	Suction strainer
6	Exciter pump	14	Travel valve
7	Exciter (vibration) valve	15	High-speed travel valve
8	Control manifold		

ROLLER COMPACTOR

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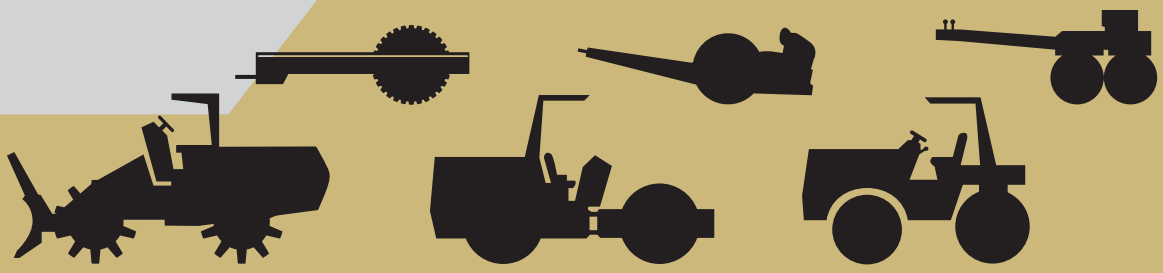
SAFETY MANUAL

FOR OPERATING AND MAINTENANCE PERSONNEL



SAFETY ALERT SYMBOL

This Safety Alert Symbol means ATTENTION is involved!

The Safety Alert Symbol identifies important safety messages on machines, safety signs, in manuals, or elsewhere. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

Why is SAFETY important to YOU?

3 BIG REASONS:

- **Accidents KILL or DISABLE**
- **Accidents COST**
- **Accidents CAN BE AVOIDED**

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Revised 6/02, 9/04

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WORD OF EXPLANATION

The following is a partial list of reference material on safe operating practices:

U.S. Department of Labor publishes safety and health regulations and standards under the authority of the Occupational Safety and Health Act for the general construction and mining industries. Its address is: U.S. Department of Labor, 200 Constitution Avenue, NW, Washington, DC 20210.

SAE - Society of Automotive Engineers, Inc., 400 Commonwealth Drive, Warrendale, PA 15096, publishes a list, "Operator Precautions," SAE J153 MAY, 1987.

Association of Equipment Manufacturers, 111 East Wisconsin Avenue, Milwaukee, WI USA 53202, publishes the Roller Compactor Safety Manual and other safety-related material.

WORD OF EXPLANATION

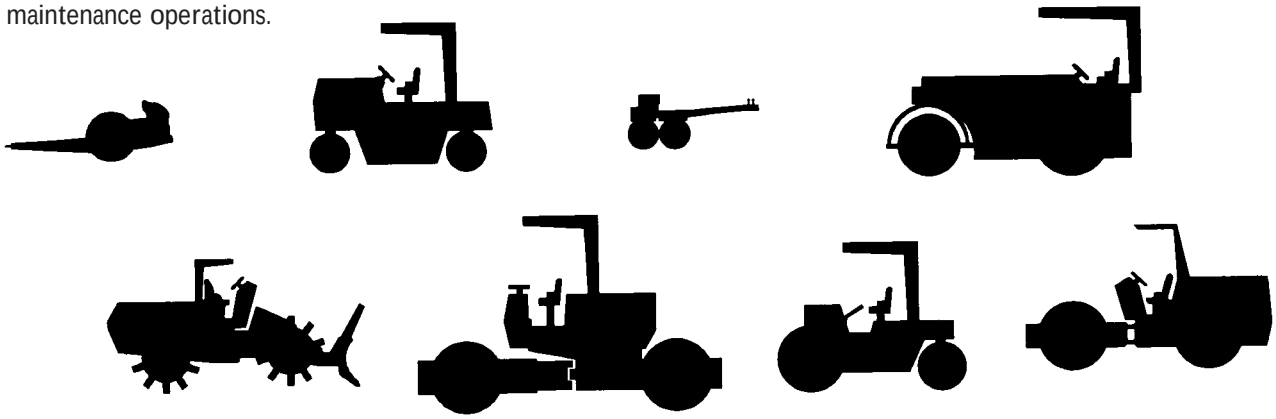
This Safety Manual covers many different types of roller compactors … including steel wheel rollers, vibratory rollers, rubber-tired rollers, segmented pad/sheepsfoot soil compactors and landfill compactors. These may be either self-propelled ride-on, walk-behind or towed rollers. They may be used for the compaction of asphalt, soil, landfill or other materials. Excluded from coverage are vibratory plates and hand rammers.

Regardless of which machine you operate, it is YOUR responsibility to study and understand this Safety Manual, and to see that a copy remains with your machine. The manual begins with your "safety homework," takes you step-by-step through your working day, and ends with maintenance operations.

Manufacturers produce machines with many built-in safety features. Employers provide accident prevention programs. Yet, the ultimate responsibility to operate and maintain your machine with the skill, care and knowledge essential for safety is YOURS.

Do not operate your machine until you have been trained in the use of all operating controls and understand the handling characteristics of the machine.

REMEMBER — SAFETY … YOURS AND THAT OF THOSE AROUND YOU … IS UP TO YOU!



FOREWORD

This safety manual is intended to point out some of the basic situations which may be encountered during the normal operation and maintenance of your machine, and to suggest possible ways of dealing with these conditions.

Additional precautions may be necessary, depending on application, machine type, configuration and attachments used, and conditions at the work-site or in the maintenance area. The manufacturer has no direct control over machine application, operation, inspection, lubrication or maintenance. Therefore, it is your responsibility to use good safe practices in these areas.

The information provided in this manual supplements the specific information about your machine that is contained in the manufacturer's manual(s). Other information which may affect the safe operation of your machine may be contained on safety signs, or in insurance requirements, employer's safety programs, safety codes, local, state/provincial and federal laws, rules and regulations.

If you do not understand any of this information, or if errors or contradictions seem to exist, consult with your supervisor before operating your machine.

IMPORTANT: If you do not have the manufacturer's manual(s) for your particular machine, get a replacement manual from your employer, equipment dealer, or manufacturer of your machine. Keep this safety manual and the manufacturer's manual(s) with your machine.

Unauthorized modifications of machines create hazards. Machines should not be modified or altered unless prior approval is obtained from the manufacturer.

It is your responsibility to read and understand this safety manual and the manufacturer's manual(s) before operating your machine. This safety manual takes you step-by-step through your working day.

Remember that **YOU are the key to safety.** Good safety practices not only protect you but also protect the people around you. Study this manual and the manufacturer's manual(s) for your specific machine. Make them a working part of your safety program. Keep in mind that this safety manual is written for only this type of machine. Practice all other usual and customary safe working precautions, and above all — (FIG. 1)

REMEMBER — SAFETY IS UP TO YOU

YOU CAN PREVENT SERIOUS INJURY OR DEATH

FIG. 1

FOLLOW A SAFETY PROGRAM

KNOW THE RULES

Every employer is concerned about safety. Safe operation and proper maintenance of your machine can prevent accidents. KNOW the rules — LIVE by them. (FIG. 2)

When starting work at a new site, check with the designated safety coordinator for specific safety instructions. DON'T LEARN SAFETY THE HARD WAY.

Know the meaning of all hand signals, signal flags, signs and markings.

Know the traffic rules used at the work site. Know who the signal person is; watch and obey their signals.

Know where the fire extinguishers and first aid kits are kept and how to use them. Know where to get proper aid and assistance when needed.

Use common sense to avoid accidents. If an accident does occur, be prepared to react to it quickly and effectively. NEVER PANIC.

Know how to use the emergency communications system to summon help when necessary.

FIG. 2

KNOW WHAT IT IS?

Consult your supervisor for specific instructions on a job, and the personal safety equipment required. For instance, you may need:

- Hard Hat
- Safety Shoes
- Eye Protection
- Face Protection
- Heavy Gloves
- Reflector Vests
- Hearing Protection
- Respirators

Do not wear loose clothing or any accessory — flopping cuffs, untied shoelaces, dangling neckties and scarves, rings, wrist watches, or other jewelry — that can catch on protruding or moving parts or controls. Long hair should be securely bound to prevent entanglement with moving parts. (FIG. 3)

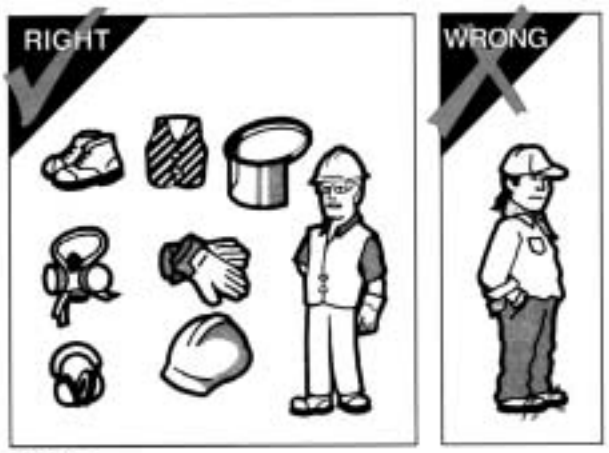


FIG. 3

FOLLOW A SAFETY PROGRAM

BE ALERT!

Know where to get assistance. Know how to use a first aid kit and fire extinguisher or fire suppression system. (FIG. 4)

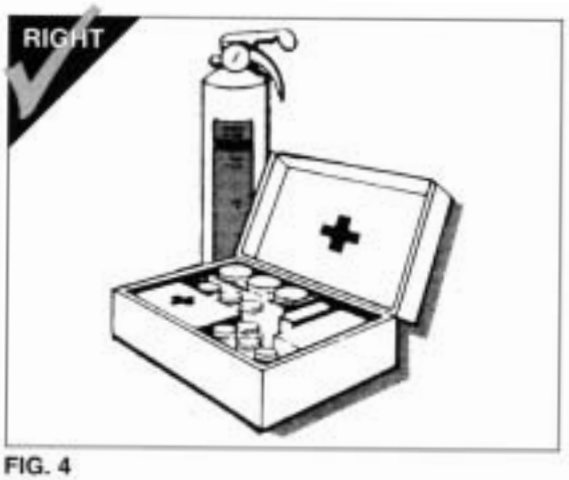


FIG. 4

BE AWARE!

Take advantage of training programs offered.

Safety programs require that one person at each jobsite be assigned the overall responsibility and authority for safety. Know who that person is, and COMMUNICATE.

Know what the jobsite rules are, and FOLLOW THE RULES. Be safety conscious, responsible and reliable. Think about safety BEFORE something happens.

Report unsafe conditions to a supervisor immediately!

BE CAREFUL!

Human error is caused by many factors: carelessness, fatigue, overload, preoccupation, incompatibility between operator and the machine, drugs, and alcohol to name a few. Eliminate these factors BEFORE accidents occur. Damage to the machine can be fixed in a short period of time, but injury, or death has a lasting effect.

FOR YOUR SAFETY AND SAFETY OF OTHERS, ENCOURAGE YOUR FELLOW WORKERS TO ACT SAFELY.

LEARN TO BE SAFE

READ the operator's manual. If one has not been provided, GET ONE AND STUDY IT BEFORE OPERATING THE MACHINE. If you have any questions contact the manufacturer.

Know the positions and understand the functions of all controls before attempting to operate a machine. Know the meaning of all identification symbols on your controls and gauges. (FIG. 5)

Know the location of the emergency shut-down control if the machine is so equipped.

Know the capabilities and limitations of the machine … such as speed, breaking and steering.

Know the operational and transport dimensions of your machine to avoid inadvertently hitting something during operation or transporting.

Carefully read and follow the instructions on all safety signs on the machine. Keep safety signs in good condition. Replace missing or damaged safety signs.

FIG. 5

NEVER operate a machine which is new to you without first being instructed in its proper operation.

CHECK IT OUT!

Always conduct a pre-shift inspection before operating any machine. Know what safety devices your machine is equipped with … and see that each item is securely in place and in operating condition. (FIG. 6)

For example:

- Safety Blocks and Locks
- Other Locking Devices
- Lights
- Alarms
- Horn
- Guards and Shields
- Shut-Down Devices
- First Aid Kit
- Fire Extinguishers

FIG. 6

PREPARE FOR SAFE OPERATION

TIRES

Inspect pneumatic tires (if so equipped) for damage, wear, and proper inflation. Never operate with over-inflated or under-inflated tires. (FIG. 7)

Check that all wheel lug nuts are present and tight.

NEVER START OR OPERATE A MACHINE KNOWN OR SUSPECTED TO BE DEFECTIVE OR MALFUNCTIONING.

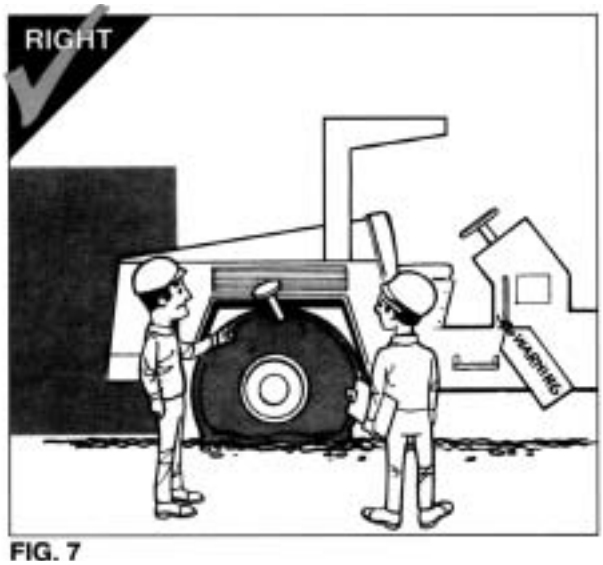


FIG. 7

KNOW YOUR MACHINE

Never operate a machine for which you are not trained or qualified.

Familiarize yourself with pedals, controls and instruments – their locations and function.

To handle controls without slipping, wipe them clean of oil and grease.

Remove tools, supplies and other materials from the working areas and machine walkways – and keep these areas free of trash.

Make sure the items you do carry are not loose or in the way.

ARE REPAIRS MADE?

If your daily check uncovers any item that needs attention – repair, replacement, or adjustment – report it to your supervisor and tag the machine on the start switch and/or other appropriate, prominent location. A minor malfunction could be a sign of a more serious problem if the machine is operated.

FIRE PREVENTION

Never allow flammable fluids or materials to contact hot surfaces.

Never refuel:

- When engine is running
- While smoking
- Near open flames or sparks
- In poorly ventilated area

Never overfill fuel tank or fluid reservoirs. Clean up spills immediately.

Replace fuel cap securely after filling.

Check for fuel, oil and hydraulic fluid leaks. Replace worn or damaged hoses/tubes. After repairs are made, clean the machine before you operate it.

Inspect electrical wiring for worn or damaged insulation. Install new wiring if wires are damaged.

Because ether or other starting fluids are flammable, do not smoke when using them. Always follow the instructions on the container and in the operator's manual for your machine. (See page 19.)

Batteries produce explosive gases. Keep open flame or sparks away. See the manufacturer's instructions when servicing the batteries, when using jumper cables or when using a battery charger. (See pages 36 and 37.)

Remove all trash or debris from the machine. Make sure that oily rags or other flammable material are not stored on the machine. (FIG. 8)

FIG. 8

PREPARE FOR SAFE OPERATION

PREPARING TO ROAD THE MACHINE

Know what conditions you will likely encounter:

- Insufficient clearances
- Traffic congestion
- Type of surface
- Steep grades
- Restricted visibility

Determine appropriate warnings to be used. (FIG. 9) Know whether you will need to be escorted.

If the machine is to travel on a road or highway, refer to the manufacturer's manual(s) for instructions. Become familiar with local laws and ordinances affecting driving on highways. Use "slow moving vehicle" emblem. Make sure flags, lights, and warning signs are in place.

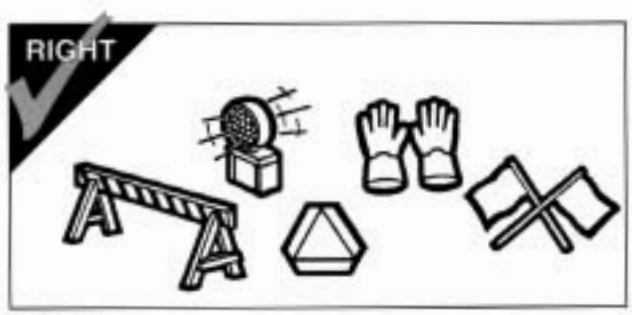


FIG. 9

Select the proper gear before negotiating steep grades. (FIG. 10)

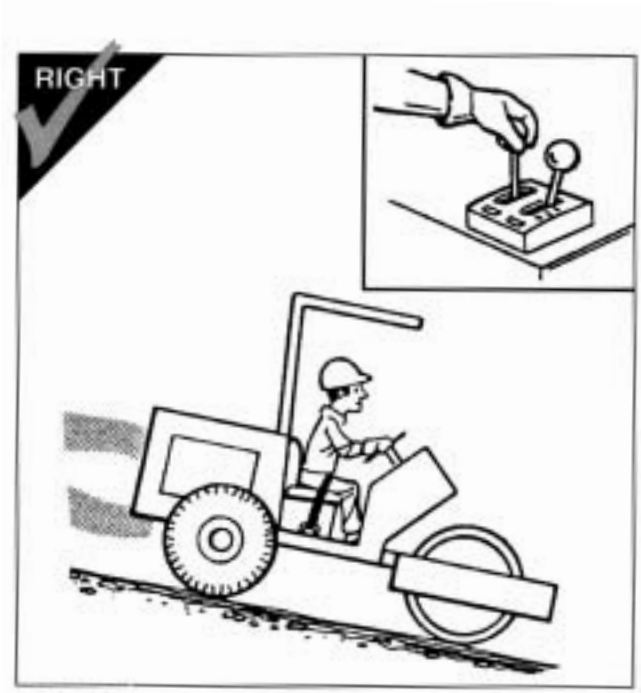


FIG. 10

Before starting, carefully inspect your machine for any evidence of physical damage such as cracking, bending or deformation of plates or welds. Check for cracking or flaking of paint, which may indicate an excessive strain or dangerous crack in the material below. Check for loose, broken or missing parts such as Roll-Over Protective Structure (ROPS) support brackets, vibration isolators, and nuts and bolts. If potentially serious problems are found, do not operate the machine until appropriate repairs are completed.

Check the level of all fluids … brake, transmission, power steering, engine coolant, hydraulic system, and others. Fill low reservoirs only to the proper level.

Check the various systems (hydraulic, cooling, etc.) for leaks. (FIG. 11) Inspect all plugs, filler caps and fittings for tell-tale signs of leaks. ALWAYS use a flashlight or shielded trouble light when checking … Never an open flame. Repair any leaks, or have them repaired by authorized service personnel. (See pages 28 through 42 for additional service cautions.)

Check the fuel level and, if low, fill the tank with the proper grade of clean fuel before extended operation (following the instructions on page 34).

A stalled or faltering engine can result in a real hazard when operating on grades, in traffic or in heavily congested areas.

NEVER smoke when checking fuel level or refueling.

FIG. 11

BE SURE THE WORK AREA IS SAFE

Before beginning operation, thoroughly check the area for any unusual conditions that could be dangerous. (FIG. 12) Check for hidden holes, drop-offs or overhead obstacles that could be dangerous. Check the clearance under overhead power and phone lines. LOOK UP AS WELL AS DOWN.

Be observant of other workmen, bystanders and other machines in the area. Be especially careful if trenches, lightpoles, tiles, buildings, etc. are within the effective range of a vibratory compactor. IMPROPER OPERATION COULD RESULT IN DAMAGE OR INJURY.

Remember, the danger of sliding and/or tipping on steep slopes is always present … regardless of how heavy or "stable" your machine may appear to be. When operating under these conditions, the use of ROPS and seat belts reduces the hazard to operating personnel.

FIG. 12

Walk around your machine once more just prior to mounting it – checking for people and objects that might be in the way – then MOUNT PROPERLY USING STEPS AND HANDHOLDS PROVIDED.

Always use seat belts if your machine is equipped with a ROPS.

Just before starting, check all controls … such as forward and reverse, steering, transmission and throttle to be sure they are in the correct start-up position. (FIG. 13) The parking brake should be applied during the start-up operation.

Check for proper functioning of all operating and shut-down controls.

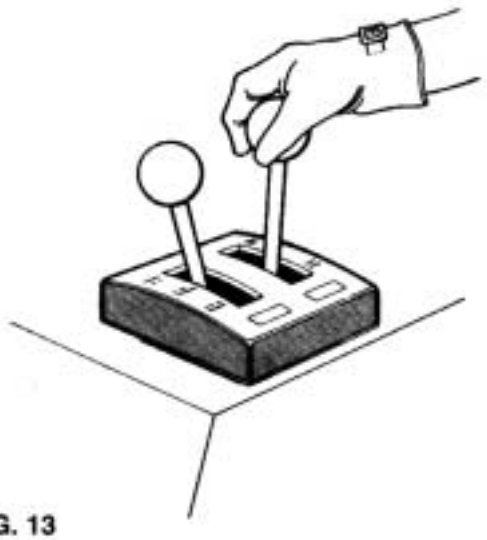


FIG. 13

START CORRECTLY

Know the PROPER starting procedure for your machine. Follow the manufacturer's operation manual … to the letter.

Then, start your engine.

IMMEDIATELY AFTER STARTING THE ENGINE ...

- Observe gauges, instruments, and warning lights to ensure that they are functioning and their readings are within the normal operating range. (FIG. 14)
- Be sure work area is safe for test operation of the various controls and attachments.
- Operate all controls: make certain they operate properly, and "feel" right. Accustom yourself to the "feel" of your machine.
- Listen for any unusual noises; smell for any unusual odors; look for any signs of trouble.
- Check all warning and safety devices and indicators.
- If safety-related defects or malfunctions are detected, shut down the machine. Correct it, or notify your supervisor. DO NOT OPERATE UNTIL CORRECTED.

Check operation of service and parking brakes on level ground if possible.

Check service brakes (including hydrostatic brakes, if so equipped) in both forward and reverse operation (FIG. 15) ACCORDING TO THE MANUFACTURERS INSTRUCTIONS.

If an unsafe condition cannot be remedied immediately, notify your supervisor and tag the machine on the start switch and/or other appropriate, prominent location. (See page 28 for Lockout/Tagout procedure.) No machine should be operated if any part is not in safe operating condition. Make certain that any unsafe condition has been satisfactorily remedied.

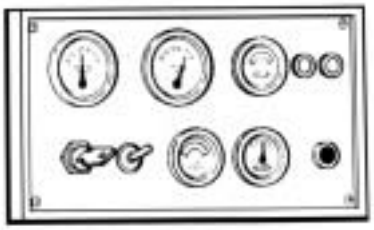


FIG. 14

FIG. 15

COLD WEATHER OPERATION

Consult the engine manufacturer's operation manual for proper cold weather starting procedure.

When using cold weather starting aids, be sure to follow the engine manufacturer's instructions. (FIG. 16)

After starting, operate all systems slowly and gently until properly warmed up.

FIG. 16

BOOSTER CABLE INSTRUCTIONS

1. Connect positive (+) cable to positive post of discharged battery.
2. Connect other end of same cable to same marked post of booster battery.
3. Connect negative (-) cable to other post of booster battery.
4. Make final connection on stalled vehicle away from battery, either on vehicle frame or engine block.
5. Start vehicle and remove cables in reverse order of connection.

WORK SAFELY

REMEMBER THESE RULES

When roading or operating a machine, always stay in the operator's station. NEVER mount or dismount a machine that is moving. Maintain control of your machine at all times.

ALWAYS operate your machine slowly until fully familiarized with it's operation.

Constantly check your total work area for potential hazards.

Never JUMP on or off your machine. Use the steps and handholds provided to mount or dismount safely. Maintain three point contact when mounting or dismounting.(FIG. 17)

- Never use controls or levers as hand holds.
- Never jump off the machine.

Look, listen and smell for possible malfunctions. If malfunctioning controls or erratic operation are detected, correct or report them immediately. DO NOT OPERATE THE MACHINE UNTIL CORRECTED.

Prevent asphyxiation. If you must operate in a building or other enclosed area, or if your machine is equipped with an enclosed cab, be certain there is adequate ventilation.

Use extra care when refueling. (See page 34 for special precautions.)

FIG. 17

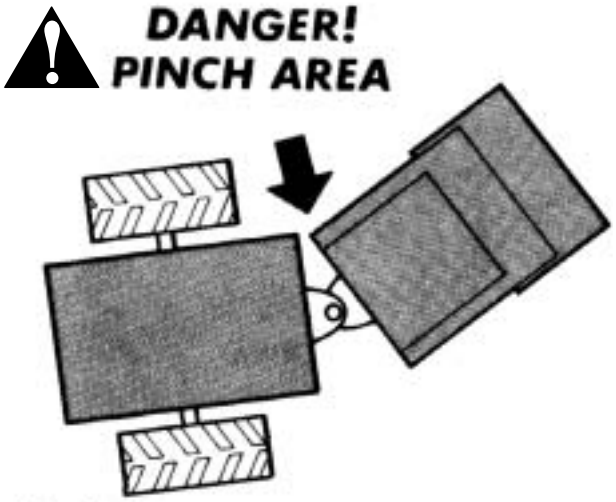


FIG. 18

For maximum safety on machines with more than one operator's position, operate from the position giving the greatest visibility of potential hazards.

NEVER allow unqualified or unauthorized personnel to operate your machine.

NEVER allow other personnel to ride on your machine unless appropriate seating is provided … and then only if authorized to do so.

NEVER abuse your machine. Misuse or abuse can cause an accident.

NEVER enter or place any part of your body in the "hinge area" or other "pinch" areas of an articulated machine while the engine is running, or when there is any chance another person might start the machine. (FIG. 18)

Give the right-of-way to loaded equipment on haul roads. Maintain a safe distance from personnel, motor vehicles and other machines.

Your safety, and the safety of those around you, is determined by the care and judgment YOU use while operating your machine.

WORKING ON SLOPES

When working on slopes, avoid sidehill travel whenever possible … rather operate up and down the slope. (FIG. 19 & 20) Remember the danger of sliding and/or tipping on steep slopes is always present … regardless of how heavy or "stable" your machine may appear to be.

ALWAYS use seat belts IF your machine is equipped with a ROPS.

NEVER allow the engine or machine to overspeed.

When climbing or descending steep grades, ALWAYS select the proper gear BEFORE starting on the slope, to assure adequate power or engine breaking.

If your machine has a gear shift, select a low gear. If your machine has a hydrostatic drive, the speed control should be in the slow travel position, close to neutral … NEVER in the fully displaced position.

On machines that have a gear shift AND a hydrostatic control, BOTH controls must be in their slow travel position.

ALWAYS be sure that manually operated gear type transmissions are fully engaged BEFORE starting onto a grade. DO NOT attempt to change the gear selection while traveling on a grade. See the manufacturer's manual for specific instructions.

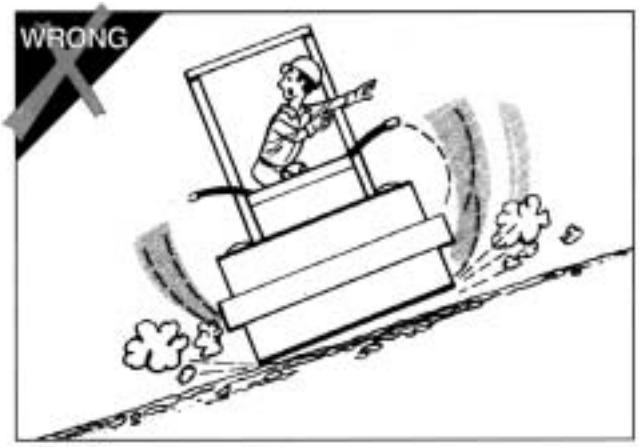


FIG. 19

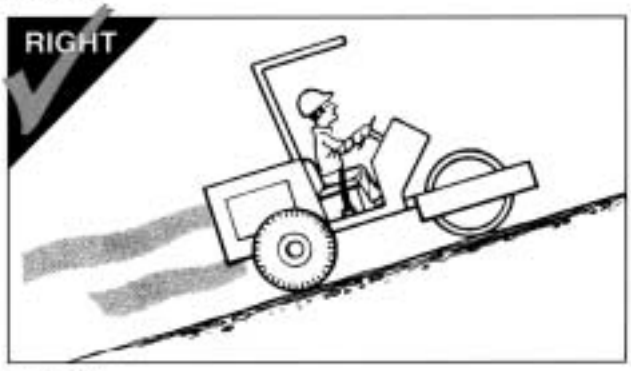


FIG. 20

FIG. 21

Avoid operating your machine too close to an overhang, deep ditch or hole. If your machine inadvertently gets close to a tipping condition or drop-off, STOP and get off the machine after applying the parking brake … plan your moves carefully before proceeding. Reversal is often the best move.

Be alert to potential caving edges, falling rocks and slides.

Check for overhead obstacles that could be dangerous. LOOK UP AS WELL AS DOWN. (FIG. 21)

Be alert to obstacles and excessively rough terrain. Back away from them and go around.

Always travel slowly over rough terrain and hillsides. Maintain a speed consistent with the working conditions.

When traveling on a public road, obey all traffic regulations and be sure that the proper clearance flags, lights and warning signs … such as the "slow moving vehicle" emblem … are used. (FIG. 22)

NEVER speed … and NEVER coast in neutral.

When roading the machine know your approximate stopping distance at any given speed.

NEVER turn corners at excessively high speeds. (FIG. 23)

Always look in all directions before reversing your direction of travel.

Use EXTRA caution when working in close quarters or when traveling through congested areas. Courtesy pays off.

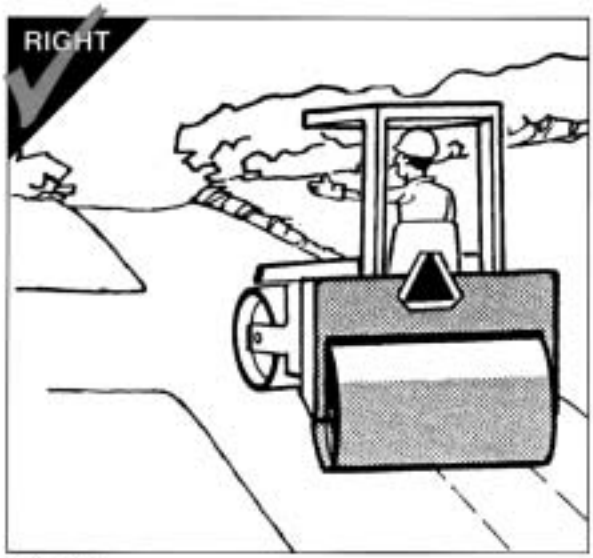


FIG. 22

FIG. 23

PARK SAFELY

Park in an off the road area, out of traffic, or as instructed. If necessary to park in a traffic lane, use the appropriate flags, barriers, flares, lights and warning signals. Provide advance warning signals in the traffic lane to warn approaching traffic.

Park on level ground whenever possible. (FIG. 25) When not possible, position the machine at right angles to the slope. Make sure the machine is on a firm footing, and that there is no danger of sliding. Do NOT leave your machine until you are sure it is safely blocked in both directions and parking brakes firmly applied. (FIG. 24)

Lower the blade and all other hydraulically operated attachments (if so equipped) to the ground.

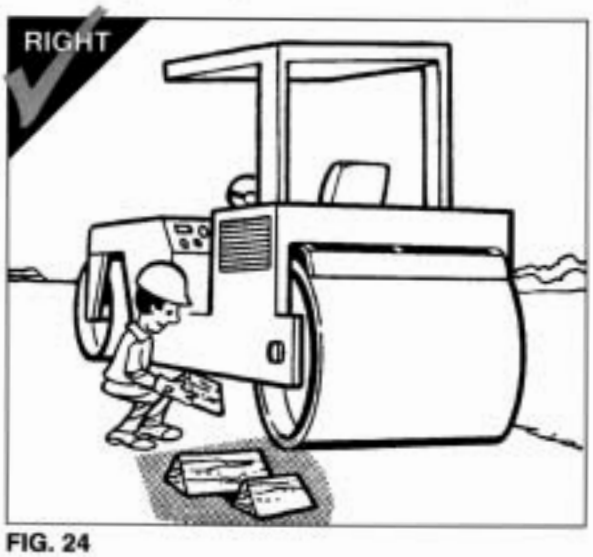


FIG. 24

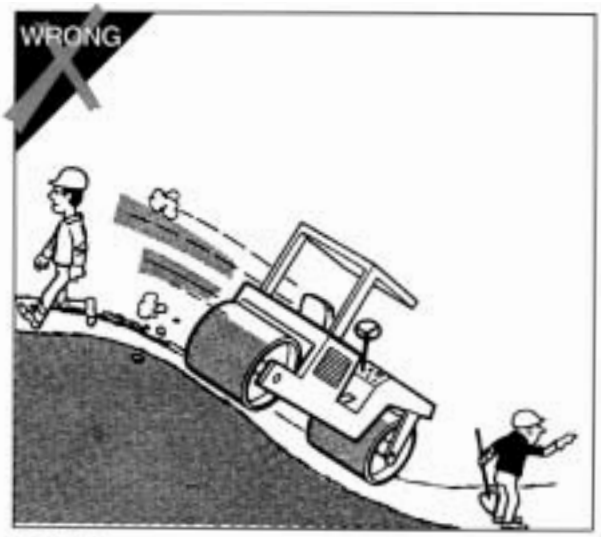


FIG. 25

PARK AND SHUT DOWN SAFELY

SHUT DOWN PROPERLY

Know the proper shut-down procedure for your machine. As with the starting procedure, this varies with the type and model of machine.

Follow the manufacturer's operation manual for YOUR machine. Remove the key(s) to prevent unauthorized starting and movement, and position and lock any antivandalism devices.

DISMOUNT PROPERLY

NEVER dismount from your machine until it is fully stopped and the engine is shut off.

NEVER jump off your machine. (FIG. 26) After stopping, use the steps and handholds provided to dismount safely. Maintain three point contact when dismounting.

FIG. 26

Loading and unloading machines always involves potential hazards. EXTREME CAUTION SHOULD BE USED.

Know the correct loading and unloading procedures for your machine.

All machines are not loaded and unloaded the same way. The procedures recommended by the manufacturer should always be followed.

Several precautions are applicable to all machines:

- NEVER load or unload machine by yourself.
- Keep all non-essential personnel clear of loading and unloading area.
- Load and unload on a level surface.
- ALWAYS use ramps of adequate size and strength. Be sure ramps are sufficiently wide, and long enough to provide a safe loading slope.
- NEVER use ramps that are cracked, damaged, or of questionable strength. (FIG. 27)
- Be sure that the ramps are securely positioned and fastened, and that the two sides are at the same level as one another.
- The ramp surface must provide adequate traction. Be sure the surface is clean and free of grease, oil, ice, and loose material.
- The hauling vehicle should be blocked to prevent movement during loading or unloading of the machine.
- For proper tie-down instructions, see the manufacturer's manual.

FIG. 27

TRANSPORTING SAFELY

GENERAL

When towing a machine on a trailer, or a machine equipped with "portability or transport wheels", ALWAYS use a hauling vehicle of sufficient weight, horsepower and braking capacity to maintain proper control.

NEVER attempt to tow a trailer or machine if the hitching devices are of insufficient or questionable capacity, improperly matched in size or shape, or positioned at improper heights.

When towing a machine equipped with portability or transport wheels, ALWAYS follow the manufacturer's towing instructions.

BEFORE TOWING

When connecting a trailer to a hauling vehicle, block under the trailer's tongue before attempting to make the connection. NEVER attempt to lift heavy tongues or move heavy trailers by hand. NEVER get any part of your body under the tongue when hitching or unhitching.

ALWAYS make sure the hitch is properly and securely locked.

ALWAYS use safety chains between the hauling vehicle and tailer or towed machine. Be sure the chains are properly and securely connected … at BOTH ends. Cross the chains under the tongue when connecting to the hauling vehicle.

ALWAYS make sure electrical and other connections between the hauling vehicle and trailer or towed machine are properly and securely made. After connecting, check the lights for proper operation. If the towed trailer or machine is equipped with brakes operable from the hauling vehicle, check to make sure they are operating properly.

ALWAYS be sure the portability or transport wheels, on machines so equipped, are LOCKED in the lowered position.

Check ALL tires for proper pressure, excessive or abnormal wear, and potentially dangerous cuts, bruises or bulges. Have any problems corrected before proceeding.

TOWING

ALWAYS use EXTRA care when towing a trailer or machine… when maneuvering in tight places, when backing (visibility is reduced, and jackknifing must be avoided), and when towing on steep grades.

Know and obey all local, state and federal laws and regulations.

NEVER travel at speeds above those recommended by the manufacturer.

NEVER allow anyone to ride on a trailer or towed machine. (FIG. 28)

When necessary to disconnect and park a trailer or towed machine, ALWAYS select a location that is level and, if possible, one where children are unlikely to be present. BEFORE disconnecting a trailer, chock the front AND rear of the wheels, and block under the tongue.

See pages 23 through 24 for parking, shut-down procedures and roading machine for transport.

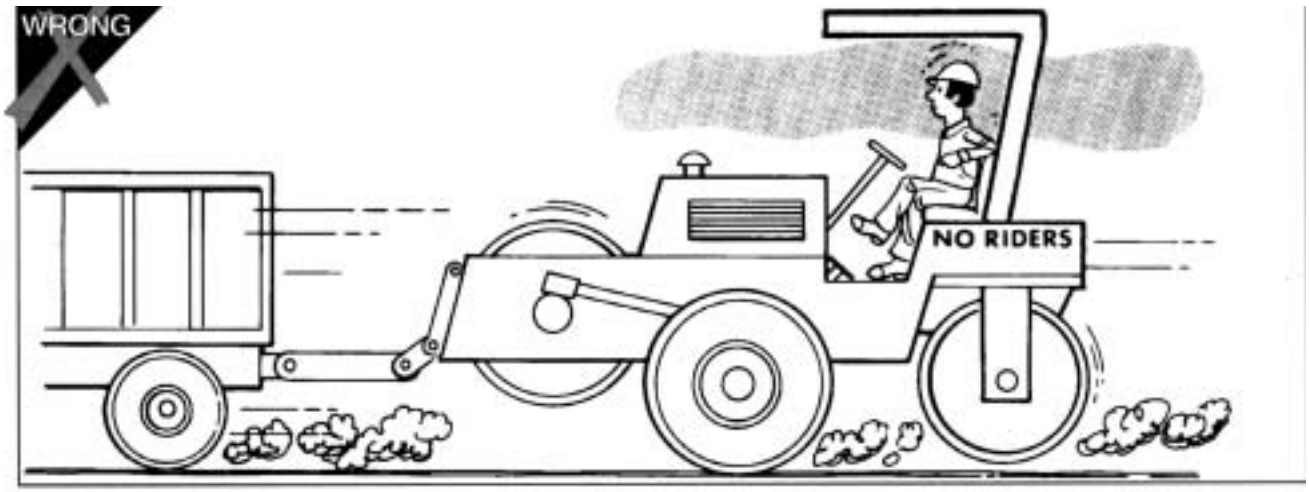


FIG. 28

PERFORM MAINTENANCE SAFELY

GENERAL

Maintenance work can be **hazardous** if not done in a careful manner. All personnel should realize the hazards and strictly follow safe practices.

NEVER perform any work on the equipment unless authorized to do so. (FIG. 29) Before performing any maintenance or repair work, consult the Instruction Manual. Follow the manufacturer's recommended procedures.

BEFORE any maintenance work is begun, review LOCKOUT/TAGOUT procedures. LOCKOUT controls and/or energy source and place a warning label to alert workers of shutdown.

PRIOR to removal of LOCKOUT/TAGOUT, the equipment must be fully operational and all personnel accounted for. Except in cases of emergency, the removal of the LOCKOUT/ TAGOUT should be done by the initiating person prior to the return to start-up.

BEFORE doing any major work, or work on the electrical system, disconnect the batteries.

REPLACE all missing or broken guards and panels.

USE proper nonflammable cleaning solvents. Follow solvent manufacturer's instructions.

ALWAYS remove all flammable materials in the vicinity of welding and/or burning operations.

BURNING OR WELDING in the vicinity of acoustical material may release hazardous fumes.

FIG. 29

CLOTHING AND PERSONAL PROTECTIVE ITEMS

Keep hands and clothing well away from engine fan and moving parts while engine is running.

ALWAYS wear appropriate safety glasses, goggles or face shield when working. (FIG. 30) Proper eye protection can keep flying particles from grinding, drilling or hammering operations, or fluids such as fuel, solvents, lubricants and brake fluids, from damaging your eyes. Normal glasses do NOT provide adequate protection.

ALWAYS wear a hard hat and safety shoes. (FIG. 30) ALWAYS wear hearing protectors when exposed to high noise levels for extended periods. ALWAYS wear a respirator when painting or exposed to dusty conditions. ALWAYS keep your pockets free of loose objects which can fall out and drop into machinery. (FIG. 31) Heavy gloves should be worn for many operations.

FIG. 30

FIG. 31

EXHAUST FUMES

Engine exhaust fumes can cause sickness or death. If it is necessary to run an engine in an enclosed area, use an exhaust pipe extension. If you do not have an exhaust pipe extension, be positive the area is adequately ventilated. (FIG. 32)

FIG. 32

HEAVY PARTS

Handle tools and heavy parts sensibly – with regard for yourself and other persons. Lower items – don't throw or drop them.

ALWAYS use proper hoisting equipment for lifting heavy loads.

PERFORM MAINTENANCE SAFELY

- Keep machine in proper adjustment at all times. Serious injury could result if adjustments are neglected.
- Whenever possible, AVOID working on a machine with the engine running. If the engine must be run to make checks or adjustments, put the transmission in neutral, set the parking brake and chock the drum and wheels securely ... front and rear ... to prevent movement in either direction.
- Personnel can be caught by moving parts when the **guards are removed** for access in making repairs. A repair or maintenance job is not complete until guards, plates and other safety devices have been replaced.
- NEVER put your fingers in open gears or reach through the spokes of a gear.
- Before working on the fuel system, close the fuel shut-off valve. NEVER smoke or use open flames near the machine while working on the fuel system.
- **Remove and store** all tools before resuming operation.
- Before working in the pivot or "pinch" area of an articulated machine, securely attach the steering frame lock to prevent the machine from turning. (FIG. 33) Enter this area only when necessary.
- Connect any other safety locks provided before proceeding with the work.

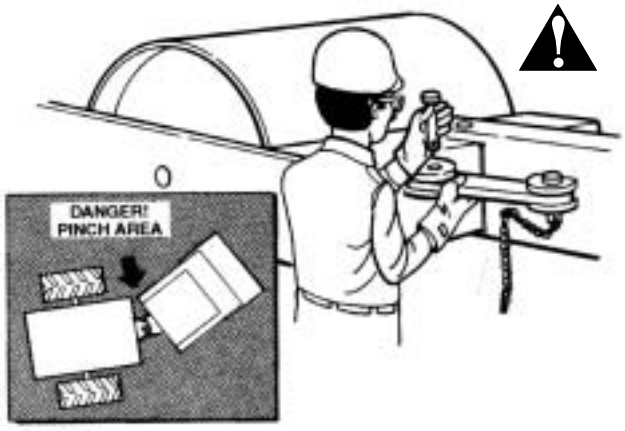


FIG. 33

Before beginning welding or burning operations, drain fuel lines and tank and move all flammable material to a safe distance, and be certain a fire extinguisher is readily available. When welding fuel tanks, either gasoline OR diesel, ALWAYS drain the tank, fill with water, and leave cap off during the welding operation.

All guards, plates and other safety devices must be properly replaced before the machine is returned to service or serious injury to you or other personnel may result.

AVOID burning or welding near acoustical material whenever possible, as **hazardous** fumes may be released. If unavoidable, make sure the area is adequately ventilated, and that a fire extinguisher is ready available.

ALWAYS use authorized replacement parts that meet the machine manufacturer's specifications.

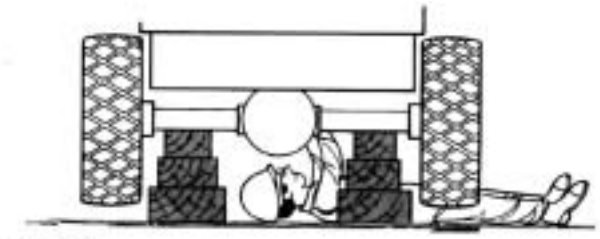


FIG. 34

JACKING AND BLOCKING

ALWAYS lower all movable attachments to the ground or to their lowest position before servicing a machine.

If a machine must be raised for servicing or repairs, ALWAYS block the machine securely. Use axle stands or other rigid supports of ample capacity. NEVER rely solely on the jacks for support. If necessary to work under a machine, be absolutely certain it is adequately supported. (FIG. 34)

WARNING: Never use concrete blocks for supports. They can collapse under even light loads.

When jacking up a machine, use a SUITABLE jack, placed in the proper position, on a solid foundation.

Before working on a machine, chock the drum and wheels securely … front and rear … in such a manner as to prevent movement in EITHER direction. Securely attach the steering frame lock to prevent the machine from turning.

PERFORM MAINTENANCE SAFELY

FIRE PREVENTION

Whenever possible use a nonflammable solvent to clean parts. Do not use gasoline or other fluids that give off harmful vapors.

If flammable fluids, such as diesel fuel, must be used, extinguish open flames or sparks and do not smoke.

Store dangerous fluids in a suitable place, in approved containers which are clearly marked. NEVER smoke in areas where flammable fluids are used or stored. (FIG. 35)

Use proper nonflammable cleaning solvents. Follow solvent manufacturer's instructions for use.

Always remove all flammable material in the vicinity of welding and/or burning operations.

ALWAYS keep the floor in the work area clean and dry. Oily, greasy floors can easily lead to falls. Wet spots, especially near electrical equipment, can be hazardous. (FIG. 35)

Know where fire extinguishers are kept – how they operate – and for what type of fire they are intended.

Check readiness of any fire detectors and fire suppression systems.

FIG. 35

FIRE PREVENTION CHECKLIST (FIG. 36)

- Remove debris such as rags, coal dust, oil, leaves, pine needles.
- Check and repair fuel and hydraulic leaks.
- Check and repair damaged wiring.
- Prevent hose and electrical wire harness abrasion.
- Tighten loose clamps and fittings.
- Secure loose wiring.
- Make sure guards and protective covers are in place.
- Make sure fire extinguisher is available and operable.

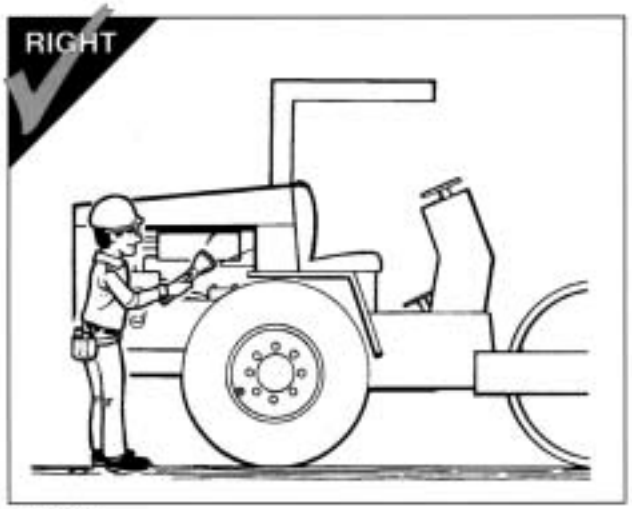


FIG. 36

PERFORM MAINTENANCE SAFELY

REFUELING (FIG. 37)

Precautions

When refueling, the following precautions must be followed:

- Add proper type and grade of fuel only when machine is not running and machine is parked with no one in the cab.
- Fuel in a well-ventilated area.
- Turn off all electrical switches.
- Turn off cab heaters.
- Open lights, lighted smoking materials, flames, or spark producing devices shall be kept at a safe distance while refueling.
- Keep fuel nozzle in contact with tank being filled, or provide a ground to prevent static sparks from igniting fuel.
- Do not spill fuel on hot surfaces.
- Any spillage shall be cleaned immediately.
- Do not start engine until fuel cap is secured to the fuel tank and people are clear of the machine.
- ALWAYS make sure fuel, oil, hydraulic fluid and water are added to their proper tanks.

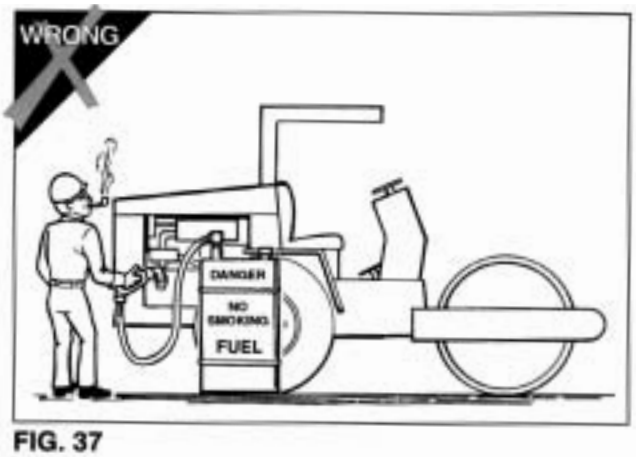


FIG. 37

SERVICING COOLING SYSTEM

When checking coolant level:

- Stop the engine and let the engine and radiator cool before checking. (FIG. 38)

If an overheated engine requires a shutdown:

- **Wait for the radiator to cool.** The hot pressurized coolant can cause burn injuries. Never add coolant to an overheated system.
- **Overheating is a symptom of trouble.** Stop the engine and have the trouble corrected before serious damage occurs.
- If it is necessary to check an overheated engine use a heavy cloth, gloves, heavy clothing and safety glasses or goggles to protect yourself. Stand to the side, turn your face away, and slightly loosen the cap. Wait until the sound stops before removing the cap.

FIG. 38

PERFORM MAINTENANCE SAFELY

SERVICING BATTERIES

Always wear safety glasses and gloves when working with batteries.

Before removing a battery, turn off all electrical equipment, then disconnect the negative (-) battery cable first. Before installing a battery, turn off all electrical equipment, then connect the positive (+) battery cable first.

To prevent sparking at the posts when using a battery charger, always turn the charger off or disconnect it from its power source before connecting or disconnecting charger leads to battery posts. Caps on all cells should be left on and the vent caps would be covered with a wet cloth.

Do not short across the battery terminals. The spark **could** ignite the gases.

BOOSTER CABLE INSTRUCTIONS (FIG. 39)

1. Connect positive (+) cable to positive post of discharged battery.
2. Connect other end of same cable to same marked post of booster battery.
3. Connect negative (-) cable to other post of booster battery.
4. Make final connection on stalled vehicle away from battery, either on vehicle frame or engine block.
5. Start vehicle and remove cables in reverse order of connection.

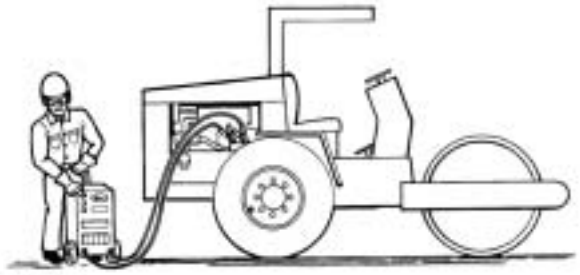


FIG. 39

BATTERY SERVICING

To prevent a battery explosion: (Fig. 40)

- **Maintain** the electrolyte at the recommended level. Check level frequently. Add distilled water to batteries only before starting up, never when shutting down. With electrolyte at the proper level, less space is available for gases to accumulate in the battery.
- **Use a flashlight** to check the electrolyte level. Never use a flame. (Fig. 41)
- **Do not short** across the battery terminals. The spark could ignite the gases.

Battery acid will **burn skin**, eat holes in clothing, and may **cause blindness** if splashed into eyes. If you spill acid on yourself flush skin immediately with lots of water. Apply baking soda to help neutralize the acid. If acids gets in your eyes, flush immediately with large amounts of water and seek proper medical treatment immediately.

When servicing batteries, remember that a lead-acid storage battery generates (when charging or discharging) hydrogen and oxygen – a very explosive mixture. A spark of flame could ignite these gases.

FIG. 40

FIG. 41

PERFORM MAINTENANCE SAFELY

HYDRAULIC SYSTEMS

NOTE: Hydraulic Systems have "special features". Some of the features affecting your safety are listed below.

Pressure can be maintained in hydraulic and air circuits long after the engine has been shut down. This pressure can cause hydraulic fluid or items such as pipe plugs to "shoot out" at high speed if pressure is not released correctly. **Release system pressure** before attempting to make adjustments or repairs.

Consult the manufacturer's instructions for correct procedure.

Before disconnecting **hydraulic fluid** lines, be sure you:

- Shut off engine.
- Always release any air pressure (supercharge) on the hydraulic reservoir.
- Move pedals and control levers repeatedly through their operating ranges to relieve all pressures.

Pressurized hydraulic fluid can penetrate the skin and **cause serious injury**. Therefore, be sure all connections are tight and that lines, pipes, and hoses are in good condition before starting the engine.

Fluid escaping from a small hole can be almost invisible. Use a piece of cardboard or wood, instead of your hands, to search for suspected leaks. (FIG. 42)

FIG. 42

HYDRAULIC SYSTEMS (CONT'D)

If you are struck by escaping **hydraulic fluid under pressure**, serious injury can occur if proper medical treatment is not administered immediately.

During operation, hydraulic fluid and air in an **unvented hydraulic tank** becomes heated and will tend to expand. This will raise the pressure inside an unvented hydraulic tank. If the filler cap is removed rapidly, the pressure in the tank can force the oil out of the tank very rapidly. **The hydraulic fluid may be very hot and may cause severe burns.** Always relieve tank pressure before removing the cap completely. Consult the manufacturer's instructions for the correct procedure.

When adding fluid to any system, be sure to use the fluid recommended by the manufacturer. Certain fluids, when mixed, may destroy seals causing loss of control and possible personal injury.

Keep hydraulic relief valve settings set to the manufacturer's recommendations. **Excessive pressures** could result in structural or hydraulic failures. Low pressure could result in loss of control. Either condition could cause **personal injury or death**.

Be sure the engine is stopped and machine is properly locked out and controls tagged, before working on a machine. Only run engine when it is essential, as in the case of pressure adjustments, lubrication, or tests. Follow the manufacturer's recommendations when making adjustments. Never resume operation until satisfactory adjustments have been made. **The operator must** follow the mechanic's instructions when adjustments are being made or machine is being serviced.

PERFORM MAINTENANCE SAFELY

TIRE INSPECTION

Recommended air pressure **must be maintained** in every tire. Daily checks assure that inflation is correct. If your periodic check discloses a tire that is continuously losing air, a leak is indicated and must be repaired. (FIG. 43)

During your pressure checks, also inspect for:

- Objects wedged between or embedded in tires.
- Missing valve caps and wheel lugs.
- Cuts, tears, and breaks that may need repair.
- Abnormal or uneven wear.
- Damaged or poor fitting rim or rim flanges.
- Projecting body hardware, loose fender bolts, spring clips – anything that could contact a tire.

Do not burn or weld on wheels or rims.

FIG. 43

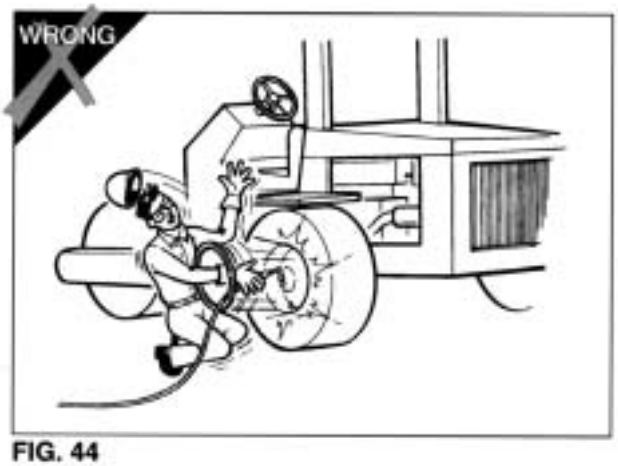


FIG. 44

PNEUMATIC TIRES

Changing tires or adding air can be a hazardous business. Special tools and procedures are required for changing off-highway tires.

Explosion and separation of a tire and/or rim parts can cause serious injury or death. (FIG. 44) Always follow the manufacturer's recommendations or see your tire supplier.

TIRE PRESSURE

Check tire pressure before starting operation. An air pressure rise during operation is normal and should NOT be reduced. Overloads or over-speeds may produce increased tire pressures due to heat. Never bleed tires. Reduce your load – or speed – or stop until tires cool.

ADD AIR

From a distance – with air chuck clipped on the tire valve – and with extension hose that permits you to stand behind tread. (FIG. 45) Always use a tire cage or equivalent for protection.

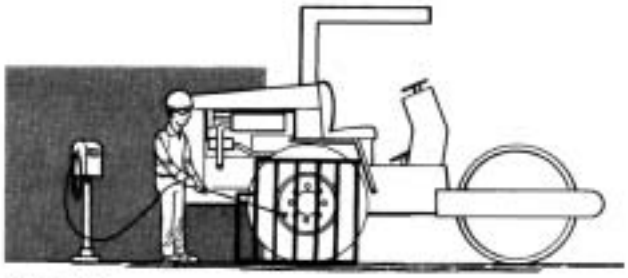


FIG. 45

PERFORM MAINTENANCE SAFELY

ROPS (Roll-Over Protective Structures)

Periodically inspect ROPS for cracks and loose mounting hardware.

Replace all missing, deteriorated or worn rubber parts.

If it becomes necessary to remove a ROPS, reinstall it only on the same machine, in its original position. (FIG. 46)

NEVER alter the ROPS in any way without the written approval of the manufacturer.

NEVER cut holes in or weld on ROPS without the manufacturer's approval.

NEVER attempt to repair a damaged ROPS – it must be replaced with a new unit, approved for that machine.

Periodically inspect seat belts for wear, tear, deterioration or excessive dirt. Replace them if necessary.

AIR CONDITIONERS

NEVER attempt to weld on or near air conditioners. Poisonous gas may be formed when refrigerant gas is exposed to a flame or excessive heat.

Maintenance and repair of air conditioners … except for very minor repairs or servicing … must be done only by an experienced air conditioner or refrigeration technician. (FIG. 47)

FIG. 46

FIG. 47

PARKING AND TRANSPORTING

ALWAYS select a level area to park in and, if possible, one where children are unlikely to be present. ALWAYS chock the front AND rear of the roller … even if leaving the machine unattended for short periods.

ALWAYS use EXTRA care when towing a roller … when maneuvering in tight places, when backing (visibility is reduced, and jackknifing must be avoided), and when operating on grades. NEVER operate a towed roller on steep grades or side slopes, as the possibility of tipping or loss of control is greater when towing a roller.

NEVER allow anyone to ride on a towed roller. And, unless absolutely necessary, never permit anyone in the "pinch" area between the towing vehicle and the towed roller.

When necessary to disconnect and park a towed roller, ALWAYS select a location which is level and, if possible, one where children are unlikely to be present. BEFORE disconnecting, ALWAYS chock the front AND rear of the roll, and block under the tongue.

Extreme care should be exercised when loading or unloading a walk-behind roller. It is generally best to stand behind and to one side rather than directly behind a machine being propelled up or down a ramp.

If the roller is designed to hang from the tailgate of a vehicle when being transported, ALWAYS be certain the hook brackets meet the roller manufacturer's specifications.

Special precautions must also be exercised when loading or unloading, transporting or servicing a towed roller. Consult your manufacturer's manual for specific details.

SPECIAL OPERATING AND MAINTENANCE PRECAUTIONS

FOR TOWED ROLLERS

Most general safety precautions covered earlier in this manual are also applicable to towed roller operation. Many other SPECIAL precautions must, however, be taken. Study your manufacturer's manual(s) relative to special considerations when towing. If you have questions or concerns, consult the manufacturer or your dealer.

ALWAYS use a tow tractor of sufficient weight, drawbar horsepower and braking capacity to properly control the towed roller. Proper weight balance and distribution is also essential.

ALWAYS block under the tongue of the towed roller BEFORE attempting to connect it to the towing vehicles or machine. NEVER attempt to lift heavy tongues or move towed rollers by hand. NEVER get any part of your body under the tongue when hitching or unhitching.

ALWAYS make sure the hitch pin is of the proper size, and securely locked in place before towing. (FIG. 48) If safety chains are provided, make sure they are properly and securely connected … at BOTH ends. Cross the chains under the tongue when connecting to the towing vehicle. If electrical or hydraulic connections are required, make sure the connections are properly and securely made.

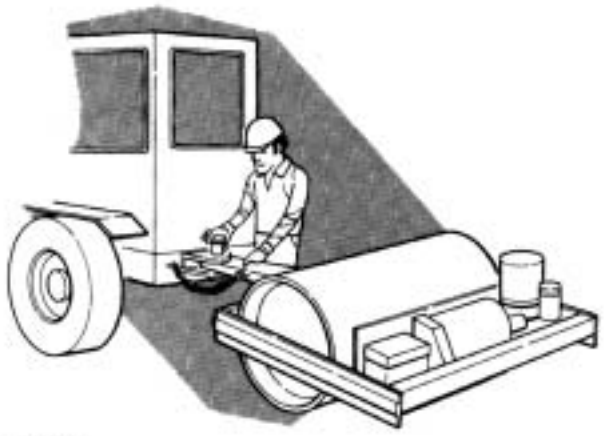


FIG. 48

FOR LANDFILL COMPACTORS

General

Operators of landfill compactors should carefully handle fill materials that could be picked up and thrown by the wheels, become lodged in the machine, or that are highly flammable.

Frequent checks should be made for wire, cable or other material wound around the axle members. Remove them immediately.

Travel with the blade as low as possible.

Maintain good operator visibility – keep all mesh and windows free of accumulated materials that reduce visibility.

When parking the machine, ALWAYS lower the blade.

FIRE PROTECTION

Maintain fire extinguishers and fire protective systems in good working order. ALWAYS recharge extinguishers, or replace with a fully charged unit immediately after use.

Check for, and remove, any waste material accumulation above belly pans and behind protective doors and grills. Accumulations are a fire hazard. (FIG. 49)

FIG. 49

SPECIAL OPERATING AND MAINTENANCE PRECAUTIONS

FOR WALK-BEHIND ROLLERS

Start-Up

NEVER attempt to operate a walk-behind roller before being thoroughly familiar with the manufacturer's operating instructions. If you have any questions or uncertainty, consult the manufacturer and/or his dealer BEFORE attempting to operate it.

ALWAYS follow the manufacturer's instructions for starting the engine. All controls MUST be in the correct position BEFORE attempting to start the engine (for example, the shift lever must be in neutral).

Starting fluid is NOT recommended when hand starting an engine. The engine may kick back.

OPERATION

When operating a walk-behind roller, ALWAYS exercise extreme care to avoid having your feet or clothing caught under the dolly wheels or roll. When possible, stand behind and to one side of the machine rather than directly behind it. Particular care must be exercised when operating near obstructions, on slippery surfaces, grades and side slopes. (ALWAYS wear slip resistant safety shoes or boots.)

NEVER ride on a walk-behind roller unless it is designed to accommodate riders and an appropriate seat is provided.

NEVER attempt to shift on a grade if the roller has a mechanical transmission.

NEVER operate a walk-behind roller in unshored trenches or near steep, unsupported banks. The vibrations could cause a cave-in.

Uneven grades can cause the handle to raise or lower unexpectedly, striking the unwary operator. (FIG. 50)

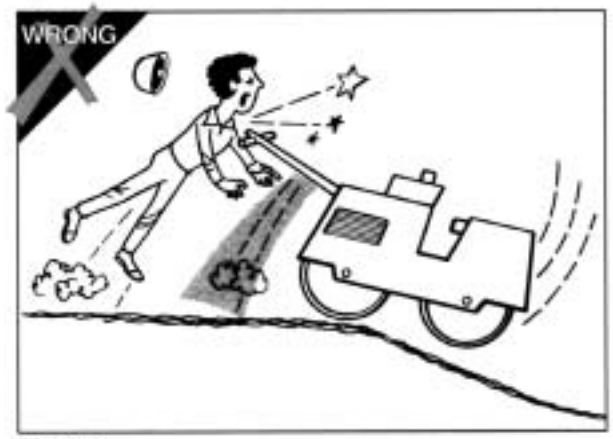


FIG. 50

Do you understand this AEM SAFETY MANUAL AND ITEMS SUCH AS …

- Your safety program?
- Your machine manufacturer's manual(s)?
- Proper clothing and personal safety equipment?
- Your machine's controls, warning signs and devices, and safety equipment?
- How to properly inspect, mount, and start your machine?
- How to check your machine for proper operation?
- Your work area and any special hazards that may exist?
- Proper operating procedures?
- Proper parking, shutdown, and dismounting procedures?
- Proper maintenance procedures?
- Proper loading and unloading procedures for transporting?
- Under what conditions you should not operate your machine?

If you do not understand any of these items, consult with your supervisor BEFORE operating your machine!

A FINAL WORD TO THE USER

Remember that YOU are the key to safety. Good safety practices not only protect you but protect the people around you.

You have read this safety manual and the manufacturer's manual(s) for your specific machine. Make them a working part of your safety program. Keep in mind that this safety manual is written for only this type of machine.

Practice all other usual and customary safe working precautions, and above all –

REMEMBER
SAFETY IS UP TO YOU

YOU CAN PREVENT SERIOUS INJURY OR DEATH

This manual is another in a series on the safe operation of machinery published by AEM.
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FORM RC-80-3

EC DECLARATION OF CONFORMITY
CE-KONFORMITÄTSERKLÄRUNG
DECLARACIÓN DE CONFORMIDAD DE LA CE
DÉCLARATION DE CONFORMITÉ C.E.

WACKER NEUSON CORPORATION, N92W15000 ANTHONY AVENUE, MENOMONEE FALLS, WISCONSIN USA

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hereby certifies that the construction equipment specified hereunder / bescheinigt, daß das Baugerät / certifica que la máquina de construcción / atteste que le matériel :

1. Category / Art / Categoría / Catégorie

Vibrating Walk-Behind Rollers / Geführte Vibrationswalzen / Rodillos Vibrantes con Conductor a Pie / Rouleaux Compacteurs Vibrants à Conducteur à Pied

2. Type - Typ - Tipo - Type **RT 56-SC2, RT 82-SC2**

3. Item number of equipment / Artikelnummer / Número de referencia de la máquina / Numéro de référence du matériel :
0620293, 0620294, 0620367, 0620368, 0620525, 0620526, 0620527, 0620528, 0620529, 0620530

4. Net installed power / absolute installierte Leistung / Potencia instalada neta / Puissance installée nette :
15,5 kW

Has been sound tested per Directive 2000/14/EC / In Übereinstimmung mit Richtlinie 2000/14/EG bewertet worden ist / Ha sido ensayado en conformidad con la norma 2000/14/CE / A été mis à l'épreuve conforme aux dispositions de la directive 2000/14/CEE :

Conformity Assessment Procedure / Konformitäts-bewertungsverfahren / Procedimiento para ensayar conformidad / Procédé pour l'épreuve de conformité	Name and address of notified body / Bei folgender einbezogener Prüfstelle / Oficina matriculadora / Organisme agrée	Measured sound power level on cohesive soil; does not comply when operated on gravel specified in EN 500-4 / Gemessemer Schallleistungspegel auf bindigen Böden; stimmt mit EN 500-4 nicht überein, wenn auf Kies betrieben / Nivel de potencia acústica determinado sobre suelos de tipo cohesivos; no es en conformidad con EN 500-4 cuando opere sobre grava / Niveau de puissance acoustique fixé sur des sols cohérents; ne conforme pas à EN 500-4 pendant l'opération sur des graviers	Guaranteed sound power level on cohesive soil; does not comply when operated on gravel specified in EN 500-4 / Garantierter Schallleistungspegel auf bindigen Böden; stimmt mit EN 500-4 nicht überein, wenn auf Kies betrieben / Nivel de potencia acústica garantizado sobre suelos de tipo cohesivos; no es en conformidad con EN 500-4 cuando opere sobre grava / Niveau de puissance acoustique garanti sur des sols cohérents; ne conforme pas à EN 500-4 pendant l'opération sur des graviers
Annex VIII Anhang VIII Anexo VIII Annexe VIII	**Lloyds Register Quality Assurance Limited (Notified Body No 0088) 71 Fenchurch Street London EC3M 4BS United Kingdom**	**108 dB(A)**	**109 dB(A)**

and has been produced in accordance with the following standards:
und in Übereinstimmung mit folgenden Richtlinien hergestellt worden ist:
y ha sido fabricado en conformidad con las siguientes normas:
et a été produit conforme aux dispositions des directives européennes ci-après :

2000/14/EC
89/336/EEC
98/37/EEC
EN 500-1
EN 500-4

William Lahner
Vice President of Engineering

Paul Sina
Manager, Product Engineering

03.11.09

Date / Datum / Fecha / Date

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